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REVIEW COMMENTS

TONOPAH STUDY AREA
GRAZING ENVIRONMENTAL STATEMENT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN DISTRICT
NEVADA

JANUARY 1977

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United States Department of the Interior

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300 Booth Street
Reno, Nevada 89509

IN REPLY REFER TO

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(N-911)

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FEB 14 1977

Information Memo No. NSO 77- 14
Expires 6/30/77

To: District Managers, Nevada
Division Chiefs, NSO

From: State Director, Nevada

Subject: Tonopah Grazing PDES Review Comments

This booklet contains a compilation of review comments received on the Tonopah grazing preliminary draft environmental statement.

These comments are made available now so that you may become more familiar with some of the problems facing Nevada's initial grazing statement.

1 Enclosure (one to each addressee)
Encl. 1 - Booklet

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Tonopah PDES Comment Letters

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United States Department of the Interior

1792 (D-380)
Tonopah ES

BUREAU OF LAND MANAGEMENT
DENVER SERVICE CENTER
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Memorandum

To: Ray Monroe, Team Leader, Tonopah ES

From: Environmental Coordinator (D-380)

Subject: Review of Tonopah PDES -- 12/13/76

The review of the subject draft has been completed. Attached is a copy of the consolidated comments from the review team. As previously arranged, I will be in Reno on January 3-5, 1977, to discuss these comments with you.

It is my understanding that the document was also made available for review by selected agencies, groups, organizations, and individuals. Please supply me with any comments that were made by these people for review for suitability of consideration in developing the next draft. Prior to my review you should have marked those that you plan on considering in developing the next draft. Although public input at this stage is appropriate, as is the case with the review of the official DES, we are not bound to utilize all comments received; but are to evaluate them for appropriateness, for inclusion and conformance with established Bureau policy and procedures.

You and the team are to be commended for the editing of this draft. This by far was the best edited PDES that I have had occasion to review. Many of the review team members also made mention of this fact. However, the writer-editor can only work with the material that is provided and cannot add essential content. In summary, this was a highly polished edited job of essentially empty material with much lacking; especially in the way of analysis of the proposal and alternatives. Apparently the document did not receive any technical editing or coordination from a technical coordinator. The lack of substance in many sections limited our capability to provide useful, constructive comments. We did not have the material to be able to make concrete suggested changes and provide you with written changes of your material. In many cases we were only able to provide you with comments dealing with the items that are missing and required. We did attempt to provide you with samples of how to do it from other ESs. Where clarification and additional "how to" details are required you and/or individual team members may feel free to contact any member of the review team. A list of the review team and subject matter will be supplied to you in Reno.

I was discouraged to find types of deficiencies in the ES which were specifically dealt with in the training session. These deficiencies were of two broad types: 1) data that were to be included were left out, and 2) data that were not to be included; e.g., species list, and were included in the PDES. I would suggest that 1792 Manual, Appendix 4, and notes

from the training session be reviewed in depth by all team members prior to developing the next draft. Because of the lack of depth and many problem areas in this draft, I feel that it will be necessary to also review the next draft in depth as this one was.

In general the major problem areas are:

1. Proposal inadequately and unclearly defined and described.

2. Full description of the environment containing unnecessary detail, unrelated to impacts.

3. Lack of quantification throughout the ES.

4. Inadequate analysis of proposal to support the conclusions. Vegetative analysis extremely weak, lacks full use of soil/ vegetal correlation and prediction of improvement and forage production by the end of the 15th year.

5. Questionable development of mitigation measures and lack of documented analysis of effectiveness.

6. Lack of a rigorous development and analysis of alternative management schemes and levels of development.

7. Lack of quantified summary tables for Chapters 3, 5, and 8.

To the extent possible the review team and I will be glad to provide what additional assistance we can to you and the team in developing the next draft.

Richard E. Trayler

Enclosure: Review Comments

cc:
W.O. 260
W.O. 330
S.D., Nevada

COMMENTS ON TONOPAH PDES -- DECEMBER 13, 1976

SUMMARY PAGE:

Item 2: In the Description of the Action, the AUMs being provided by the proposal should be identified.

Item 3: 2nd paragraph, the "will" in the 7th line should be changed to "would".

Item 6: The date should be deleted. This date is left blank on the draft statement. The attachment for the comments requested should be single spaced.

Under the Department of the Interior, National Park Service should be added.

Why is the Energy Research and Development Administration listed to receive the official review copy? Also, why is it considered necessary for the Department of the Air Force to receive an official review copy?

Conservation organizations, livestock organizations, and other organizations, such as Society for Range Management should be added to this list. See Challis ES.

TABLE OF CONTENTS:

The Table of Contents should be singled spaced, and each chapter should not start a separate page. Also, Roman numerals are not used; only Arabic. The order of the sections should be the same throughout the ES; e.g.: Chapter 2, Air Quality precedes Topography; however, in Chapter 3, Topography precedes Air Quality.

MAPS:

A few selected maps were sent for review. Based on these few, our comments are:

The maps are too small to adequately portray the necessary information. The present map size is only adequate to provide a generalized overview of the area and are suitable for direct inclusion into the text of the ES. However, larger size maps are needed and should be developed. These larger maps would have to be fold-up maps which would be included in a map pocket at the back of the ES (see Colorado NW Coal for map examples of this type). The maps are necessary to visually show the various relationships between critical elements (e.g.: vegetation, soil types, critical wildlife habitat), and the component parts of the proposed action plan.

Each type of information needs to be portrayed on a base map which shows the proposed allotment and pasture boundaries; i.e.: the base map utilized requires allotment and pasture boundaries shown on it. The various components of the proposal need to be shown; i.e.: planned improvements, land treatments, sub-systems of management (grazing systems) and other classes of management (elimination of grazing). Any existing improvements or land treat-

ments have to be shown separately from proposed improvements in order to present a clear picture of the proposed action plan. For use in the analysis one map is suggested showing the systems of management (grazing systems) and land treatments overlaid upon the condition classes of the present range resource.

In addition, there are certain basic features each map requires and these are: 1) map number, 2) title, 3) complete legend showing all items contained on the map, 4) scale, and 5) north arrow.

Specific Comments on Maps:

Range Management Program Features -- This title is misleading as it does not show all of the range management program features. It should be titled "Proposed Improvements and Land Treatments". All existing features have to be removed and shown on a separate map. This map does not show the grazing systems as would be expected based on the title. Also, the primitive area is not a component of the action plan, and has to be removed. The action plan has a component of elimination of grazing.

The legend of proposed features shows several items which are not described as parts of the action in Chapter 1: windmills and reservoirs. It also fails to show the chain and seed land treatment described in Chapter 1.

Proposed Grazing Allotments -- Each allotment should be numbered and the same number used in the tables in the text. This map should also show the pasture boundaries and proposed systems. The legend should show what the red lines are. It should also show the elimination of grazing area. The words "primitive area" are to be removed.

Land Status -- Are there no state owned lands in this vast area? None show on the legend. Some of the colors are so close in shade that it is difficult to distinquish between ownerships.

Generalized Geology -- After viewing this, its need and use in the ES is not apparent. Suggest that this map be deleted.

Vegetation -- There are some differences in types shown on this map with what is shown on Page 2-60, Table 2-17. They should be uniform.

Map	Table 2-17
Mid grass	Sod grass
Cheat grass	None
Black Sagebrush	Black Sage & Low-Sage
Saltbrush	Saltbush
Shadescale	Shadscale
Greasewood	Black Greasewood & Baileys Greasewood

Because of the scale and similarities of color, it is very difficult to distinquish between some of the types. It should also show the allotment and pasture boundaries.

CHAPTER 1

General:

Terms should be standardized. For example: is it implementation of intensive management, or implementation of allotment management plan? Suggest that it be implementation of allotment management plan. Another term needing standardization is: is it study area or resource area? Use should be consistent throughout this chapter and the rest of the document.

The proposal cannot be described as if. The proposal has to be specific and clearly stated in order to be analyzed. If there are areas of doubt, then these areas have to be clarified before the chapter can be completed and impact analysis can take place.

Pages should be numbered at the bottom and Roman numerals are not to be used in the environmental statement. Only Arabic numbers.

As presently written, it is impossible to clearly determine the proposed AUM use levels for the proposal for livestock, wildlife, wild horses, and the total AUM use level since these figures were not filled in.

The chapter has to be structured to clearly identify the proposed use levels to be implemented. A map showing land status should be included. The draft did not contain any indication that a map of this type would be included. A map showing grazing treatment progression on the area for the first grazing cycle should be included. The draft did not contain any indication that such a map would be included.

A discussion on grazing systems and management procedures needs to be included. This would include a discussion on how grazing would be controlled, livestock moved from pasture to pasture, how trespass would be detected and controlled, and how the proposed action would be implemented; i.e., execution of AMP agreements.

The draft did not follow the format for range environmental statement chapters one (see attached format). The purpose of the format is to establish consistency among all Bureau range environmental statements. It also is based on past reviews and presents the data in a logical format and sequence. It standardizes items so the public will know where to look for data of a certain type instead of being consistently faced with a different sequence in each range ES.

All maps in the document should show on the base the proposed allotment and pasture boundaries. Same base map should be used for all maps.

Too much space and time is spent in describing how and why AMPs and various boundaries were developed. This is immaterial information as far as the environmental staement is concerned. The task of Chapter 1 is to specifically and critically define and describe the action proposed for implementation and not try to justify why it was developed or how it was developed. The chapter failed to establish the timeframe for achieving overall objectives.

Specific:

Page 1-1: The discussion of the background of the suit and settlement is confusing because of the dates being out of sequence. The second paragraph on this page should be moved up to occur first. The actual sequence should be described and that involved the suit being filed prior to circulation of the final grazing impact statement

Page 1-2: 2nd paragraph. Third reason -- what is meant by first generation? This should be defined or deleted.

Page 1-3: Top of page. Should include a table in this section showing past license use for the area for a minimum five year period in order to develop average license use for later use in the statement in analyzing impacts.

Proposed Action, first line -- Indicates the proposal is to implement a grazing management program. However, on Page 1-2, last paragraph, says a grazing management program already exists on the area; so what is meant by the statement in this line. Would suggest that the proposal is to implement an improved grazing management program.

Where is Battle Mountain located? What state?

Each map should have a number and that number should be in the text where the map is cited.

The word "intensive" in describing the grazing management should be deleted.

Item 1, under Components of the Proposal, should be titled "Implementation of Fourteen Allotment Management Plans". AMPs should be defined at this point; not later on in the chapter.

Item 2: Is this continuation of no grazing or elimination of grazing? Merely saying no livestock grazing does not provide an idea of what the action is.

Is it 32,480 acres as identified here; or is it 32,490 acres as identified on the summary page?

The four different management systems should be identified at this point. What are support measures? The typical characterization of these measures are improvements. Suggest that support be replaced by improvements.

The sentence discussing support measures needed to meet multi-use objectives is unclear. The support measures are needed to be able to implement the AMP. Suggest that this sentence be revised and clarified.

Table 1 does not have a number. It should be be Table 1-1.

Last sentence on the page. This should be placed in the section describing the elimination of grazing component part of the proposal.

Page 1-4: It is unclear if the title on this page is the title of the map. If this is the map title, then it is incorrect as the environmental statement does not study. Does the map include Mineral County? If not, why not? Does the map show location in respect to the state; i.e., is it a general location type map?

Page 1-5: This map as other maps in the document needs a map number. Existing fences should be shown in Chapter 2; not in Chapter 1. Also, all existing developments should be shown on a map separate from showing the proposed developments. If this map only shows proposed range improvements, it should not occur until these improvements are described. It is out of place at this point.

Page 1-6: The first paragraph on this page does not track from Page 1-3. The first sentence is incomplete and unclear. The material in this paragraph is immaterial for environmental statement purpose and should be deleted.

Second paragraph. Table 1-1 is not complete in describing the proposed action. It lacks use levels. A table showing land status in the study area should be developed and included. (See attached sample.)

Page 1-7: Table 1-1. This table should be revised to show just the proposed action. The support measures or improvements should be deleted from this table and shown later in Chapter 1 when these measures are being discussed. The fence miles and pipeline miles should be rounded to the closest mile. Use of tenths portrays a preciseness which is not true. The table should be reorganized as shown on the attached example. The table should show all proposed AUM use levels.

Page 1-10: First paragraph. This is the second of many times in this chapter that the statement is made that the proposed action would be applied to fourteen allotments. This statement is redundant and should not be repeated. The material contained in this paragraph is immaterial for ES purposes and should be deleted.

Second paragraph. This paragraph states general motherhood statements and does not add anything to the environmental statement procedure and should be deleted.

Third paragraph. The first sentence should be reworded to concisely state the purpose of the proposed action. The projected AUMs at the end of 15 years should not be included as it is impossible to know what this will be until the completion of the impact analysis. What are the overall objectives for the proposal? They should be included at this point. These objectives should be clearly defined and quantified as they play a role in development of alternatives. AUMs referred to but actual AUM figure was not provided. The review copy is a preliminary draft, but figures are needed to fully comprehend the proposal.

The document generalizes that the proposed action can be expected to MAINTAIN or IMPROVE the renewable resources of national resource lands. "Watershed" is cited as a renewable resource. That term is vague and non-specific. Water is the renewable resource. Most consider soil as a non-renewable resource. The section goes on to say that the BLM needs to ACHIEVE and SUSTAIN stable soil and watershed conditions. Right here, criteria for water and soil stability should be introduced, and tied into the text which follows.

Page 1-11: The heading "Intensive Grazing Management" should be changed to "Implementation of AMPs".

Second paragraph, last sentence. An AMP also establishes AUM use levels, does it not? There is no mention in this sentence of that being accomplished in an AMP.

Page 1-12: First paragraph is immaterial to ES purposes and should be deleted.

Second paragraph contains too much detail for this chapter. It should be mentioned that the proposal does include procedures for monitoring studies and that these studies are whatever they are and that the detailed descriptions of them are located in Chapter 4.

Third paragraph. This should be placed in Chapter 4 in the section on monitoring and study procedures.

Page 1-13: Second paragraph should be deleted. It is immaterial for ES purposes.

Third paragraph. There is no need to state the reasons for preparing the economic analysis or the use of the economic analysis.

Sentence 3 and following sentences refer to evaluating project feasibility via cost-effectiveness, yet reference is made to the net benefits and benefit/cost ratio. The paragraph describes the benefit/cost analysis process, but labels it cost effectiveness. This is incorrect. The term is inappropriately used since costs and benefits were quantified, and the C/E process is usually used in situations where the alternative outputs (i.e., benefits) cannot be easily quantified in dollars.

Page 1-14: First sentence, first paragraph is unclear. The only mention should be that the economic analysis is filed as is done in the second paragraph except that it should indicate where Battle Mountain is. Also, it should indicate the results of the economic analysis.

Group the allotments by ratio as determined by the economic analysis; i.e., "x" number of allotments .95 or better, "x" number of allotments 1.5 or better, etc.

A suggested grouping based on the results of the Tonopah B/C's is as follows:

B/C Ratios 1:1 to 2.0:1	B/C Ratios Better than 2.1:1	B/C Ratios Less than 1:1
6	3*	4**

* 1 B/C Ratio of 20.85:1
** 2 B/C Ratios considered sub-marginal (i.e., less than .5:1)

The benefit-cost ratio is an economic indication of efficiency, as well as an indicator of investment return (i.e., B/C Ratio of 1.20:1, is a $1.20 return for each dollar of investment).

Third paragraph. The statement is made, "It is assumed that through the implementation of the various grazing systems, the specific objectives for renewable resources as outlined in the AMPs would be obtained." First of all, the term "objectives", as applied in Table 1-2 is very loose. The watershed and water resources objectives, for example, are nothing more than vague descriptions of desired results. Secondly, it is questionable whether some of these objectives are scientifically or physically feasible from a resource management standpoint. Lastly, it is appalling to see in an ES an assumption that AMP objectives will, without question, be attained. The next assumption in the same vein would be that of assuming that AMP objective attainment would have a net insignificant environmental impact.

The second sentence should be deleted as we cannot assume that the specific objectives would be attained. The analysis is and should show if the objectives would be attained or not. This paragraph mentions 14 AMPs in two places. This is unnecessary repetition.

Should prepare a table showing acres by system. Also, the acres in each system should be inserted in the first sentence.

Page 1-15: Table 1-2. There is little quantification in this table. Few of the vegetative objectives are quantified; i.e., in Blue Eagle PW #1, increase would affect Indian rice grass, Galleta grass, low sage; increase from what to what? The specific objectives should be aggregated to the allotment level for Chapter 1. The specific objectives by pasture table should be placed in the appendix. The last column should be labeled "Livestock Forage". Are the objectives listed here, the use now; or is the objective to increase AUMs? For example, shouldn't the objective read, "Increase livestock forage production by "x" AUMs to a total of "y" AUMs. Specific quantification should be added throughout the table. (See attached example.)

It is commendable that this table splits out water resources objectives from watershed objectives, but objectives in both categories still need a lot of work. They need to be stated as a desired result in objective, measurable terms or units. The wildlife objectives are well done and this is because they are quantitative.

Some examples of specific watershed objectives for an allotment are as follows: 1) retain all thunderstorm overland flow on site for all two and six hour duration storms up to 25 year recurrence interval, 2) increase snowmelt runoff by 20 percent in any channels meeting good to excellent channel stability rating, 3) reduce the mean monthly specific conductance by 500 micromhos, and 4) reduce annual sheet erosion losses over the allotment by 1 ton per acre.

Page 1-17: Is the same as Page 1-16.

Page 1-18: For the Reveille allotment; is the AMP objective to remove horses or is this an objective of the wild horse management plan? For the same allotment, for the objective for water, reduce sediment coliform by 50 percent. How do you know what the existing coliform is and what is the existing level so that quantification and measurement of achievement of the objectives are possible? It should be reduced from such a level to such a level.

Page 1-19: Wagon Johnnie allotment, pasture #2 -- these are not objectives. What is the objective of allowing less than 50 percent utilization on important big game foraging plants? To do what? What is the objective of allowing 50 percent utilization of riparian and meadow vegetation to do what? Improve, maintain? What conditon is it in now?

Page 1-20: Stone Cabin allotment livestock objective. This is if/or situation. The AMP writers have to analyze the chance of the objective being met by management within a specified timeframe, and if not, then they have to propose now any land treatment. This if-type proposal or objective cannot be analyzed. It has to be defined and specified now, not later.

Page 1-21: Ralston Monitor allotment livestock objectives -- again, the objective has to be specific now. The AMP writers have to analyze the chance of success, and if not met within Bureau requirements, then they have to propose spray and seeding projects now, not an if/or type situation.

Page 1-29: Second paragraph. The citation procedure used is incorrect. The cite should be "Hormay, 1970". The rest of the data would be included in the literature and cite list at the end of this statement.

Page 1-30: Second paragraph. What has this to do with description of rest-rotation system? This information on Table 1-3 is out of place.

Bottom of page. The figure showing the system should have a figure number and title, and should be referred to in the text prior to occurring in the document.

Page 1-32: Top of page. This should be a table with a table number and title. Also, there are no illustrations in an ES. The correct term is figures. There is also no referencing in the text prior to this use. For clarification and definition of tables, figures, and maps, see 1792, Appendix 4, Page 19.

Page 1-33: Top of page. The drawing should have a figure number and title. The table at the bottom of the page should have a table number and title. Also, should be mentioned in the text prior to use.

Page 1-34: First paragraph, last line. Citation procedure is incorrect. For correct citation procedures in environmental statements, refer to 1792, Appendix 4, Page 18, third paragraph under "References".

The drawing at the bottom of the page should have a figure number and title. The table at the bottom of the page should have a table number and title, and should be referred to in the text prior to that use.

Page 1-35: Second line. The title, "Resource Area" is used; however, study area had been used before. Should be consistent in naming the area. The diagram in the middle of the page should have a figure number and title, and be referred to in the text prior to use.

Last paragraph on the page, is not part of the description of the deferred grazing system. This paragraph should be placed in the introduction to the systems discussion.

Page 1-36: Should develop a table showing the average annual acreage under each treatment; i.e., spring, summer, rest, etc. This table could be combined with the table showing the acres in each grazing system.

Page 1-37: Table 1-4. This table is very confusing and contains too much information on one table. Parts of this table should be combined with Table 1-1 to fully portray the proposed action. Columns C, D, E, F, and G are supposed to be total columns and would appear to be the information needed for Table 1-1. The use of Columns A, B, H, I, and J is unclear and appears to be unnecessary to describe the proposed action. Some of this information might be needed or may be useful in interrelationship section in assisting in the description of interrelationship between the proposal and the Management Framework Plan.

Page 1-39: There appears to be a problem in the two headings on this page. Both of these subheadings are of the same order; however, elimination of livestock grazing is a component of the program while implementation schedule should be a separate subject title.

First paragraph. How will grazing be eliminated? How many AUMs involved in this area? The implementation schedule discussion in this second paragraph should follow at the end of the discussion of improvements. See format to be followed in the attachment.

Page 1-43: First paragraph. Second sentence discusses implementation of intensive management; last sentence discusses implementing the AMPs. I believe that these are one and the same and that in both cases it should be implementing the proposed AMPs.

Third paragraph. The purpose of this paragraph is unclear and does not appear to add anything necessary for the environmental statement or in describing the proposed action. It should be deleted. However, as is implied here, that proposed grazing management facilities and watershed cover treatments are in most cases "still on a conceptual plane", then we would suggest that the good thorough planning and resource capability analysis which must precede AMP development and is required, is incomplete, and that we have no business going to the public with this huge plan for grazing on 4.4 million acres until the minimum degree of resource capability planning is in fact complete.

Page 1-44: First paragraph. The idea behind site-specific ESs is to implement without additional EARs; therefore, this type of material is questionable. The first paragraph should be placed in Chapter 4 as an action to occur after results are analyzed from the monitoring program.

Second paragraph. Maintenance requirements need to be specifically identified and broken out by BLM vs. private, including cost, as these are environmental costs and would be utilized in analysis of impact on the ranches.

Sixth line of the second paragraph. The operational or preventative maintenance should be identified specifically as to what is meant.

Third paragraph. Second sentence -- the word "if" is used; what is meant by if; what is the specific proposal? The actual proposal that will be implemented has to be described.

Item 1: The discussion of the proposal has to be specific. How many roads would be constructed? How much of permanent access would be required? Where would the roads be constructed? This information is required for impact analysis.

Item 2: This part on archeological clearance has already been stated previous. Should be deleted from here.

Item 3: How would disturbed areas be reseeded?

Page 1-45: First line. How would disturbance be held to a minimum?

Item 5: Which sites would require excavation? How many of these are there?

Item 6: This should be placed with the description of the various water improvements as part of the design features.

Figure 1-5: It is unclear as to what this figure would be. The title is not clearly understood as to what the figure will show. The description of improvements -- there are several items which have been omitted from the description of each of these improvements and they should be added to each of them. In the description an average disturbed acres per mile per unit should be used. These should be totaled in the summary table which appears in the first section in Chapter 3. The time required per unit should be described. In other words, the timeframe for building a mile of fence or constructing a cattle guard should be inserted into each description. The manpower requirements for each type of improvement per unit should also be inserted into the description.

Page 1-46: Third paragraph. Where would the red or green steel posts be used? The description has to be specific so that impacts may be analyzed.

Fourth paragraph. What is the criteria for determining whether a gate or cattle guard would be installed. This is necessary to be able to analyze the impacts on recreational use.

Page 1-47: First paragraph. Item 1: States all new fences. Is it necessary to say "new fences", since isn't this what we are describing -- the construction of new fences?

Page 1-48: Third paragraph, third line. The parens should be: (see Figure 1-7 for pipeline example).

Page 1-49: Second paragraph, second sentence. Where is surface-like rock likely to occur that would prohibit burying the pipeline? How much pipeline is expected to be laid on the surface? Through the use of the soil type maps and information, this should be determined. Also, the AMP writer should know the area and be able to provide some idea of estimate of amount of pipeline that would have to be laid on the surface. Where and how much would a back hoe or trencher be used rather than the method described in the first paragraph?

Fourth paragraph. How will the wells be drilled? How will the hole be drilled? What will be the power sources for the pumps to be used in the wells? Will power lines have to be constructed or will the pumps be self-contained with a propane gas tank? How many windmills will be constructed on the landscape? This information is necessary in order to be able to analyze impacts.

With reference to the width of the "ripper tooth", there are quite a number of width measurements which are "less than 4 inches wide". Just which one do we mean? Say how wide or forget it.

Page 1-50: First full paragraph. How will storage tanks be transported to the area? Will the tanks be completely enclosed including the top?

Page 1-51: Third paragraph. How much fencing will be around the springs? How much area would be enclosed by the fencing around the springs?

Page 1-54: Land Treatments. The following items should be added to the description of each land treatment: 1) Time required. This could be for the total amount or would be better developed on a per acre basis and the total shown in Chapter 3. Also, manpower requirements required on a per unit basis should also be developed so the total manpower requirement can be developed in the first section in Chapter 3.

Second paragraph. Table 1-1 identifies changes in seeding. This description does not describe how the seeding would be done. What is meant in the second line by "if the proposal" were followed? The proposal has to be specific, not on an if/or basis. Will this 2,650 acres be in one big block? Will islands be left? Additional description is needed to fully describe the chaining proposal?

Page 1-55: First paragraph. Are these acres to be sprayed in each allotment in one big block or are they separated into little blocks which add up to the 960 acres, 900 acres, etc.?

Second paragraph. Which will be used to apply the chemical? Fix-wing or helicopter? The amount of drift could vary depending on the type of aircraft used. Helicopter probably provides more positive control of the spray pattern.

Third line. Need to explain what is meant by spraying would be in an uneven pattern. Under what conditions will spraying be accomplished? What are the procedures? How are areas identified? There's a lot more to spraying than these two short paragraphs. The description on aerial spraying needs to be expanded. Fully describe the procedure.

Third paragraph. How will the area be seeded? Explain the process of using the range land drill. Are all of these seedings in one block in each allotment or are they in separate smaller blocks.

Page 1-56: Table 1-6. The cost should be rounded to the nearest hundred dollars. An explanation of what the costs are based on and what they include should be added as a footnote.

Page 1-57: The interrelationship section is insufficient as presently written. Should refer to IM 76-264. Also, see attached sample for possible way of handling interrelationship with the planning system. This section has to describe how the proposed action interrelates with existing or proposed (known and most probable) Federal, state, and local private projects, plans and policies. This has yet to be accomplished. This section must identify in a concise and brief manner the specific MFP objectives for the area that the grazing proposals interrelate with; i.e., wildlife, watershed, etc. The section must describe any trade-offs, quantifying where possible, that were made to accommodate the proposal. Need to describe the relationships of the proposal to achieving the stated MFP objectives. The MFPs for both of the areas need to be described. This may be combined into one description. It is immaterial that the MFP was not available when the AMPs covering the Esmeralda County portion were prepared and this statement should be deleted.

Page 1-58: Middle of page. Since the allocated deer and antelope AUMs are below the demand, what does this mean in terms of reduction in numbers? How will we go out and reduce wildlife numbers; or will they starve to death because of this reduction? The results detailed in Table 1-4 should be moved to this section as commented on previously.

Last paragraph. Third sentence -- this indicates that the Esmeralda MFP is available; however, the previous statement was that it wasn't completed (on a prior page).

Forage allocation figures all include reductions from present demand. Total allocated appears to be less than availability. If reductions are imposed through the MFP, why are the total demand and allocation the same?

	AUMs Demand		AUMs Allocated		Net Difference
Cattle	148,414		115,193		-33,221
Wild Horses	18,227		6,240		-11,987
Deer	15,788		12,257		-3,531
Antelope	2,116		2,070		-46
Bighorn Sheep	546		546		0
	185,091	AUM TOTAL	136,306	AUMs ALLOCATED	-48,785

TOTAL DEMAND (AUM)	185,091
TOTAL ALLOCATED (AUM)	136,306
DIFFERENCE	48,785

No explanation is made as to what becomes of the 48,785 AUMs, or whether the reduced AUMs are not available for animal (all) consumption because of slope, or other factors. Wouldn't there be some AUMs used by wildlife? What about an allocation for watershed?

Page 1-59: First full paragraph. The other decisions should be identified specifically. The most of the resource activities should be specific. What resource activity?

Second paragraph. How will this coordination be closely achieved?

Third paragraph. What are the constraints on grazing from the wild horse management plan? What horse levels are recommended and what levels will be obtained? How will close coordination be accomplished with the grazing program?

Last paragraph. How will other BLM programs be coordinated? How will this coordination be achieved? The exact coordination techniques and procedures should be explained and how the proposal relates with these other plans specifically and critically defined and described.

Page 1-60: First paragraph, second sentence. How does this intensive survey affect the program?

Next sentence. Wasn't this recreation decision considered in the development of the proposal by elimination of grazing?

Last sentence. Was this part of the proposal? If not, then it should be stated that it was not part of the proposal and that it would not be considered even though it was a MFP decision. If it was a MFP decision, then it should be part of the described proposal.

Second paragraph. What was the MFP decision pertaining to mineral exploration and development? What will take precedent? Mineral development or grazing? This has to be spelled out.

Third paragraph. Last sentence. Was this prepared in 1976? This is almost 1977, and will be by the time this draft is issued. This information should be updated. Additional effort will be required to fully describe the relationship between the proposal and the MFPs for the area. It is not sufficient to merely describe the various MFP decisions and/or objectives but how they relate to the proposal and how the proposal relates or accomplishes them should be described.

Page 1-61: What specific U.S. Forest Service programs are occurring on or adjacent to the area? What is the exact relationship between the two land areas? This description needs to be specific. What is the exact plan interrelationship with the Forest Service planning? What is the relationship between the operation on national resource land and operation on Forest Service land by the various livestock operators? Are the operators on the Tonopah unit the same as they are on the Forest Service? What is the relationship between level of use and numbers of stock, seasons of use, etc.? How coordinated is the proposal with the Forest Service plans for the area?

Second paragraph. What are the specific discrepancies between the AMPs and U.S. Forest Service land use plans? These should be described.

Third paragraph. What specific programs does the Fish & Wildlife Service have on the area? Do they have any, and if so, what is the interface between the proposed action and their programs? Is their predator control program an active program and how does our program interface with the predator control program?

The sentence at the bottom of this page is incomplete. It is also immaterial and should not be placed in this section.

Conservation coordination with the F&WS belongs in Chapter 9.

Page 1-62: First paragraph should be deleted. This may be their responsibility but is it an active program on the Tonopah unit? The purpose of this section is to describe the interrelationship with the proposal and with other agencies' programs or plans on the area.

Second paragraph. How does the proposal relate to the Nevada Department of Fish & Game plans for the area? Do they have plans for an increase in animal populations, improving habitat, etc.? The description in this section is coordination, not interrelationships, and should be deleted. The interrelationships with Nevada Department of Fish & Game should be specifically and critically defined and described.

Last paragraph. Does Energy Resource Development Administration have an active program on the area? If so, what is the relationship between the proposal and their program? What is their specific program on the area?

Page 1-63: What specific ongoing program does the Nevada Department of Highways have on the area? The MFP decision mentioned in the first sentence was not mentioned in the MFP section.

Second paragraph. What are the specific programs that SCS has on the area and what are the critical relationships between our proposal and their program?

The last sentence may not be quite true. Changes in use on Federal land could certainly affect private land use, and if SCS has ranch plans, what are the interrelationships between the proposed use on Federal land and the plan for use on private land? They do interrelate unless the operators operate only on Federal land. The relationship of the proposed grazing management program to the wildlife management plans and wild horse management plans is only sketchily mentioned and should be precisely explained.

CHAPTER 2

General:

The major problem with this chapter is its size. It currently contains a lot of excess material which is not related to impact analysis or needed in impact analysis. The question has to be asked of each piece of data in each section: Was it used explicity in the impact analysis? If not, it should be deleted.

The interactions between determining major impacts and deciding which environmental elements to stress in this chapter cannot be over emphasized. Evidently little thought was given to the potential impacts before describing the area. Many of the descriptions read as if they are a complete description of the area for the reader rather than trying to emphasize those points to be impacted by the proposal. A lot of deletions should occur in this chapter and each author will need to go over his material and compare it with the impact analysis to determine what should be deleted.

This chapter also contains impact data; i.e., sediment yield and erosion condition with the proposal. This type of information belongs in Chapter 3 and has to be deleted from Chapter 2. Also, certain sections in the descriptions of the existing environment contains future trends and future descriptions which have to be deleted from that section and placed in the section on future environment.

Each map requires a number and the map number has to be cited in the text when referring to the map. Whenever a percent is used the number corresponding to it, provided a number does correspond to it, has to be used also. In rare instances is a percent used that would not have a corresponding number that should be placed in parens after the percent.

Methodologies used in developing any part of the description has to be cited and described in the appendix; for example, methodology for determining vegetative types, conditions, trend, etc. Methodologies are not to be located in the text, only the results thereof. In some sections the methodologies were located in the text; for example, Cultural Resource Inventory Procedures.

Specific:

Climate:

Page 2-2: The Tonopah Resource Area is subdivided on this page into six basic climatic-vegetation zones. If these are classical subdivisions as we believe they are, the basis of the classification should be cited.

If it is a modified Thornthwaite climatic classification, is it thermal or moisture efficiency based? If it is Trewartha, Merrian, or Koppen based, this should be stated.

Page 2-3: It is unclear as to what Figure 2-1 shows, and the need of this data for impact analysis.

Page 2-4: First paragraph. The annual rainfall in inches should be inserted in the second line.

Fifth paragraph. What does the over 50 percent relate to? The inches should be inserted after percent.

Page 2-5: Table II-1. What is the period of record for each of the precipitation averages associated with the 14 allotments? How many points within each allotment are sampled? What is the elevation above sea level of each sampling point? What instrument is used? It is important in interpreting these data to know if they are from a recording weighing bucket gage, a storage gage, or a standard eight-inch gage. The last three columns in this table are very confusing. What do they denote?

Page 2-7: First sentence. This is typical of the type of information that is not of concern in the environmental description. It does not matter that the winter and spring precipitations are the most beneficial of the three moisture sources. All that is needed is a concise, complete description of the existing climatological factors for the area.

Second paragraph, second sentence. This again is typical of the type of information which has been included in this chapter which does not relate to impact analysis. It is immaterial for impact analysis as to why precipitation is of little agricultural value.

With reference to the last paragraph -- there are four (4) factors itemized which are to explain the one (or two?) previous facts. The way this section reads, precipitation is fairly independent of elevation because of high evaporation losses and infrequent overland flow. It is a syntax problem. To convince the reader that elevation does not strongly affect precipitation totals, present a simple linear regression of precipitation over elevation based on Table II-3. Try also for monthly totals. They may be more sensitive to topography.

Tie the last sentence on this page into the kinetic energy column of Table II-2 and you will have made the point better.

Page 2-9: Table II-4 is incorrectly stated as showing seasonal precipitation amounts for the allotments. It does not do that, but rather it displays annual precipitation totals or values. Nor does Table II-4 display return periods for storm duration. Suggest you insert the following definition here: "Return period is the average interval of time within which a given hydrometeorologic event (rainfall event or flood event) will be equaled or exceeded once. It is statistically defined as the reciprocal of 1 minus the probability of a value occurring which is equal to or less than a specified value.

Page 2-9: The most useful way of presenting the precipitation information would be to develop an ISOBAR map. Was this considered and has such a map been prepared? If not, one should be.

Page 2-11: If Table II-4 on this page was derived from rainfall frequency duration tables of NOAA Atlas 2, credit to NOAA Atlas 2 should be provided in a footnote.

Page 2-12: How was the information on this page used in impact analysis? It appears that it was not and should be deleted. However, if it is considered necessary, the probabilities for receiving selected rainfall amounts for given one, two, or three week periods are of limited value unless you convert them to some sort of an antecedent watershed index, such as that used by SCS in NEH-4.

Page 2-13: Why are figures 2-3 through 2-5 needed? How were they used in impact analysis?

Page 2-14: If the lapse rates referred to here are based upon a set of observed temperature data, that data should be referenced by author, date. If the lapse rates specified are a local interpretation of standard odiabatic lapse rates, they are incorrect (about 100 percent low).

Growing seasons are determined by the average number of consecutive frost free days, NOT "the number of days without frost." The method stated on Page 2-14 will always overestimate growing season length because of warm weather sandwiched between consecutive frosty nights.

Page 2-17: The explanation of a temperature inversion needs clarification. While the basic definition provided is correct, the cause of temperature inversions is misleading. There are three types of temperature inversions. They are subsidence, radiation, and frontal inversions. The most likely situation setting up temperature inversions on these Tonopah allotments is a combination of the radiation and subsidence inversion. Radiation inversions take place at the higher elevations where snow cover is more predominant, and over other surfaces of relatively high surface reflectivity.

Radiation inversions produce a shallow zone of cold air which moves downhill. When this happens over large areas, large scale sinking and warming of air masses occurs, particularly under very low absolute humidities such as those characteristic of the Nevada deserts. This large scale sinking and warming is the cause for subsidence inversion, which is how we would classify the inversions discussed in this Chapter.

Page 2-18: What species of humidity are you referring to here? There are many expressions of the water holding property of the air. If you mean RELATIVE HUMIDITY, state it as such.

Air Quality:

Page 2-20: Based on Chapter 3 - Impacts, the impacts on air quality are minor, insignificant, requiring little description. Air quality can be sufficiently described by the first paragraph on Page 2-20, and Table 2-7 and Figure 2-6. Any material beyond this is unnecessary and should be deleted, including the material in the appendix.

Topography and Geology:

The only items requiring discussion under this section are relationships, very brief, of geology and soil types and a discussion and description of topography as it relates to physical constraints on grazing. This section does neither at this point and should be rewritten. A brief, concise, picture of the topography of the area is required. The topography and geology slope map is appropriate and should be retained.

Page 2-28: The generalized geology map should be deleted.

Page 2-29: Seismic activity should be deleted, including the seismic risk map.

Soils:

The existing environment has not been adequately described. The soils map, if large enough, is a big help to the reader, but each mapping unit should be described in terms of soil characteristics and behavior. This can appear in the appendix and be referred to in the text.

Attempts should be made to describe and estimate the total geologic erosion continually in progress in the Tonopah area. This number should reflect a base line erosion rate which man has little control of.

Page 2-30: The first two sentences should be deleted; adds nothing to description of current condition of the soils.

Page 2-31: More than a schematic soils map is required to portray the soils information of this area.

Page 2-33: Here it is stated that the PSIAC method was used in computing future sediment yields under the proposed action. The exact procedure to do this should be presented in detail in the appendix. The validity of using this method to project sediment yields during future years, under a somewhat uncertain set of vegetal and infiltration rate changes, can be questioned, however it is one available method.

The testing of PSIAC referred to on this page is relevant only in the sense of making present estimates of ungaged basin sediment discharge. No one to our knowledge has published any data which would demonstrate the error of the method in projecting future sediment yields under a dynamic set of vegetal and infiltration changes.

Second paragraph. Table D-4 shows only one value. The only concern for this section of Chapter 2 is present erosion and sediment yields. This should be presented in the text by allotment and total by pasture located in backup information. How do these sediment yield values compare favorably - how favorably? Define. Identify.

Last part of this paragraph. Vegetal productivity should be shown in the vegetation section, and be converted to AUMs. It should be deleted from the soils section.

Page 2-34: First paragraph. The map spoken of concerning erosion condition indicates that the present and future erosion is the same, they are not.

The assertion that soil compaction via natural and livestock grazing processes cannot be quantified demonstrates that little or no effort was placed on a review of the literature. There are nearly two dozen published research papers which document changes in infiltration rate as measured along gradients of (a) grazing intensity and/or (b) range condition class. These were well documented in Colorado's San Luis RA Grazing ES They need not be done in the Tonopah RA to have transfer value for purposes of the subject PDES.

Information on these papers may be supplied by contact with D-350, by requesting a copy of Gifford, Hawkins & Williams report from S.D. Colorado and by referring to the current issue of Journal of Soil and Water Conservation.

First paragraph. The erosion condition classes should be tabulated by acres, by class, and by allotment. Show by pasture in backup information. Only the present erosion condition is shown in this part of Chapter 2. Future under current management, is not shown in this section of Chapter 2. Future erosion condition classes resulting from implementation of the proposed action is Chapter 3 material and has to be deleted from Chapter 2. We were unable to find Table 2-18.

Page 2-35: The erosion condition map for Chapter 2 is to show only present erosion conditions - not future.

Water Resources:

Page 2-36: Second line. How much is a small portion? How many acres?

Last two sentences. How does this describe surface water resources? Should be deleted.

How can the reader balance the reference on this page to "relatively high infiltration rates" with the rather low rates which Appendix Table D-2 demonstrates?

Page 2-37: First paragraph. How did this paragraph on evapotranspiration deal with impact discussion? This is a textbook discussion. How does it describe the Tonopah Area?

Second paragraph, first line. Stream channels in the mountains - which ones? Are they on the area? What about data on streambank stability ratings for the area?

Another factor contributing to ET is evaporation from open water surfaces.

Snowmelt causes less erosion and sedimentation on aridland watersheds than do convective thunderstorms principally because the water supply rate to the soil surface from snowpack storage is much less than typical rainfall intensities found in convective storms. Longer hydrograph bases for snowmelt are an effect, not a cause.

Page 2-38: While the average annual runoff estimate of less than one inch over valley basins is reasonable, the upper figure of 10 inches for high elevation areas is very unreasonable, particularly when one reviews your precipitation data in Chapter 2. What was probably the intent was that up to 10 inches of the total precip. input arrives as snowfall on the higher elevation watersheds. With an upper limit of only 20-24 inches annual precipitation, it will be difficult to convince the reader that you get a 50 percent water yield efficiency - unless some streamflow/precip. data are presented concurrently.

Here it is stated that below 8,000 feet, most precipitation is lost by satisfying soil water deficits. Clearly a large amount of say, 8-9 inches, of precip. is lost from actual evaporation at the wetted soil surface, interception, and by snowpack sublimation. This statement should be reworded to reflect that. We suggest that with 8 inches precip., you may have 0.5 inches runoff, 2.0 inches evaporative losses of the type we have raised, and 5.5 inches transpired. The last statement on Page 2-45 confirms this review comment.

Page 2-39: Table 2-8. This table is interesting, but would be much more useful if the hydrographic areas could be figuratively related to the study area, and proposed allotments.

Page 2-40: Some analysis or citation should be provided to support the position that snowmelt runoff furnishes most of the ground water replenishment. There is a high probability that in jointed areas, susceptible to high intensity rainfall events, a larger fraction of recharge comes as thunderstorm runoff.

Second line. The stream channels should be identified specifically.

Sixth line. What is meant by sediment? Should be defined at this point.

Seventh line. What is meant by orographic? Should be defined at this point.

Page 2-41: Table 2-9. Is the drainage area in square miles? What allotments or portions in each of these areas? Furthermore, will flow be measurably impacted by the proposal - if not, then this data is unneeded. Assume period of record is in years?

Page 2-42: Table 2-10. What is the relationship to allotments? Again, will flows be impacted and was this data utilized in impact analysis. What is the basis of the approved flow estimate; average, minimum, etc?

Page 2-44: First paragraph. What allotment is Little Fish Lake located in? Is it on national resource land?

The fact that Little Fish Valley Lake is fed by runoff flows is no real surprise. What kind of runoff-snowmelt?

Second paragraph. Should be deleted.

Third paragraph. What are the existing sediment loads of the streams? Last sentence indicates that a discussion on sediment transport is located in the Soils section. The Soils section does not discuss sediment transport. Sedimentation should be discussed under Water Resources.

Page 2-45: How much will ground water levels be impacted by the proposed action? Addition of only 33 wells would not appear to severely impact ground water. We suggest that description of ground water be limited to one brief page of text and no maps.

Page 2-46: How does the information on this page relate to impacts? It doesn't appear to be needed and should be deleted.

Page 2-47: Map on principal areas on natural ground water discharge - how will this map be utilized in impact analysis? It appears to be not needed.

Page 2-48: Table 2-11. Will the hydrologic budget be materially changed or impacted by the proposed action? If not, then this data is unneeded.

The table, however, contains many inconsistencies when compared with the "Hydrological Summary - Surface Water Data," Table 2-8. These two tables should be related to one another!

The same comment pertains to Table 2-12.

Page 2-49: Table 2-12. How is the information presented in this table related to impact analysis? It appears to be not needed and should be deleted.

Page 2-50: How is the information on this page used in impact analysis? It does not appear that anything described here will be impacted and this data should be deleted.

Page 2-51: Table 2-13. This table plus a short paragraph of text is probably all that is needed to adequately describe the ground water for the Tonopah Area.

Page 2-52: First paragraph. How does this data relate to impact analysis? It should be deleted.

Page 2-53: One-time water sampling for any water quality constituent in an aridland ecosystem is insufficient by any standard. These data are meaningless to an even greater degree in the absence of flow measurements. Wide fluctuations in water quality are likely with seasonal and year to year vegetative and climatic change. This is even acknowledged by the fisheries specialist on Page 2-137.

It is not valid to imply that these water quality data show a generally suitable quality for irrigation or livestock use on an annual basis because the sampling program had no design to account for temporal or flow dependent variability.

Page 2-55: Table 2-14. The information in this table should be related to allotments. What allotments are the sites located in? State whether arsenic, copper, and zinc are total or dissolved.

Page 2-56: Table 2-15. The information in this table should be related to allotments. What allotments are the sites located in?

Page 2-57: Table 2-16. How do these standards help in describing the existing situation? One step of the impact analysis is to compare against set standards. If used in the ES at all, this standard table should occur in Chapter 3 - not Chapter 2.

The cited recommended limits for drinking water are from EPA's 1972 Water Quality Criteria. Pursuant to P.L. 93-523, the Safe Drinking Water Act, EPA has promulgated interim primary drinking water regulations which supercede those limits cited in this PDES. Refer to the Federal Register EPA Interim Standards.

Vegetation:

The analysis of impacts on the vegetation in the Tonopah area should deal with site-specific impacts -- impacts on each allotment. To provide a basis for the impact analysis, Chapter 2 must, therefore, describe vegetation types and vegetation at the allotment level. Much of the required information can be provided in tabular form. Information describing it on the pasture level also has to be available for review upon request.

Description of Vegetation Types:

1. Basis for developing types.

   We are uncomfortable with the use of vegetation types based on Phase I Watershed data. Since these types are based on broad aspect, they probably include several different plant communities, each with its own understory vegetation and its own productive potential. It would seem nearly impossible to analyze impacts on such heterogeneous units in any meaningful way. For example, as ecological condition declines, two areas with different productive potential may appear to be the same vegetation type, but these two areas might respond very differently to the same grazing system because of different soils.

   Since it appears that you have correlated soils and vegetation using the SCS range-site or "ecological site" method, we suggest that your description of vegetation types rely on this approach. In the statement, Table D-1 lists the soil subgroups that make up each mapping unit and plant species typically associated with each subgroup. We do not know what kind of back-up information was used to develop this table -- whether there is more information on species composition than the 2-6 species listed in the table but, if there is good information correlating soils and plant species, we suggest using this data to develop vegetation types based on ecological sites (range sites). Since there is often more than one soil per ecological site (see section 302.7 of the SCS range site handbook), we do not think there will be a vegetation type for each subgroup within each mapping unit.

   The AMPs for the Shoshone Resource Area in Idaho were developed from an "ecological site" type inventory, so there are several resource specialists in Idaho with experience in correlating soils and vegetation to form ecological sites.

2. Information to be included in the description of vegetation types.

   a. Acreage of each type.

   b. Percentage of total area represented by each type.

c. Species composition

d. Present Productivity.

e. Future productivity.

f. General land form and soil types where this occurs.

g. Percent plant cover in each vegetation type.

Description of Allotment Vegetation:

1. Information to be included in the description of allotment vegetation: (in tabular form) (see attached sample)

   a. Vegetation types present.

   b. Acreage in each vegetation type and percent of allotment in each vegetation type.

   c. Present total productivity in AUMs.

   d. Potential total productivity in AUMs.

   e. Percent cover.

   f. Range condition.

   g. Apparent trend.

2. Determining potential and present productivity for each allotment.

   These figures must be developed at the pasture level. With the ecological site method, the potential production in lbs/acre for each ecological site is known and can be converted to AUMs. Even though this does not represent total production from an ecological standpoint, it provides a figure that can be compared with AMP objectives, etc.

   One way of figuring present production for a pasture is illustrated below:

Given pasture "x" with ecological sites a and b, ecological condition is as follows:

Site a	600 acres	in fair ecological condition
	200 acres	poor
Site b	500 acres	good
	700 acres	fair
	200 acres	poor

Production/acre is:

Site a	Fair condition	500 lbs forage/acre
	Poor condition	200 lbs forage/acre
Site b	Good condition	700 lbs forage/acre
	Fair condition	500 lbs forage/acre
	Poor condition	200 lbs forage/acre

Present production for the pasture =

600	fair x 500 lbs/acre	=	300,000
200	poor x 200 lbs/acre	=	40,000
500	good x 700 lbs/acre	=	350,000
700	fair x 500 lbs/acre	=	350,000
200	poor x 200 lbs/acre	=	40,000
			1,080,000 lbs forage available in pasture

Divide by forage requirements per animal.

Abbreviations of species names are not understandable to the lay reader. Common names should be used.

Riparian vegetation and meadows should be described in the vegetation section not in the wildlife section.

Even though no studies on long range trends are available, information on apparent trend can be included if it is labeled as such.

Page 2-58: Third paragraph. Riparian vegetative description has to be located in the vegetation section.

Fourth paragraph. What is the map number for the Vegetation Map?

Page 2-59: Where is the methodology described to determine this? Should be located in the appendix.

Page 2-60: Table 2-17. What does the column, Percent of Total Area, relate to? What total area? The column for major species will not mean anything to the general public. The common names have to be utilized. What is meant by percent composition? This has to be defined on the table.

Page 2-64: Table 2-18. Information should also be available by pasture and should be made available upon request. Acres of each vegetative subtype in each allotment should be added. The total percent should be corrected to indicate the correct title, i.e., weighted average. The column "Percent Litter" - small rock/large rock, should be defined in a footnote to the table.

Page 2-66: Footnote B. How was the weighted average obtained? Should provide an example showing how it was derived.

Page 2-67: First paragraph. Riparian vegetation has to be discussed in the Vegetative Section, not in Wildlife. The following information should be added to each of the vegetative type descriptions. After the name of the type should add total acres. Also, as part of description, the current condition and trend of each type should be added.

Page 2-72: It is not current practice to have in the statement a listing of species of either vegetation or animals. Therefore, the listing in Appendix B should be deleted and made available upon request.

Second paragraph. How was range condition determined? Where is the description of the methodology located? It should be in the appendix.

Second paragraph, first line. Ecological range conditions should be defined at this point. The soils surface factor is an erosion factor and does not have any relation to vegetative description. The discussion of the soil surface factor should be located in the soils section.

Third paragraph. The acres for each of the percents should be added.

Fourth paragraph. Acres for the percent should be added.

Fifth paragraph. Acres for the percent should be added.

Page 2-73: Column labeled "Watershed Erosion" belongs in the Soils section and should be removed from here. Acres in each condition class should be added. For the "Horse" column, is this domestic or wild horse?

Page 2-77: Table 2-19. What does the percent column indicate? Percent of what?

Page 2-79: Third paragraph. Trend data is needed for the ES; if nothing else, apparent trend should be determined at the present time.

Fourth paragraph. These guides would at least give some idea if other data could not be made available. They should be used - but qualify the use of them. Apparent trend has to be developed in order to determine the impact of the proposal on trend and vegetative condition.

Wildlife:

This discussion contains entirely too much historical data which has to be deleted. Discussion by habitat types leads to excessive amounts of text and duplication. The relationship between species and vegetative types can be

shown in a tabulation (see attached sample). Also, discussion by habitat types hides the impact topic which is "Species." The description should be restructured by major species and groups for minor species. Vegetation is described elsewhere and discussion of the species and groups deal with the critical requirements for each species.

Page 2-92: Third paragraph. As with the list of vegetative species, we are not including detailed lists of animals in the ES. A detailed list should be made available upon request but not located in the appendix. Therefore, these lists should be deleted.

Third paragraph. States that invertebrates are included in Appendix G. No invertebrates are listed in Appendix G.

Page 2-93: This is the first time there has been any mention of species on the area in this section. This indicates the entire section has to be restructured to emphasize the impact which is on species -- not habitat.

Page 2-95: The data on this page has nothing to do with describing the existing situation for impact analysis and should be deleted.

Page 2-96: First paragraph. Mule deer should be a major topic of discussion in this section. The first part of this paragraph is historical data and is not needed for impact analysis and should be deleted. What and where are these management areas? This is the first time they have been mentioned.

Second paragraph. This is immaterial for describing existing conditions and populations and should be deleted. The total discussion on mule deer is unclear and imprecise. There is no way of telling total population of mule deer on the ES area. There is no relationship to allotments. The migration patterns are unclear. Total acres of water, summer range, critical areas, is unclear. This discussion appears to be a series of unrelated topics thrown together in a haphazard manner. Tables are needed to reduce the text and clarify presentation. A clear, concise presentation and description has to be developed.

Page 2-97: First paragraph. This is good, nice-to-know information but how does it describe existing conditions?

Second paragraph. Starting with the sentence "past overuse" is history and does not describe present conditions.

Page 2-98: First two paragraphs are historical data not related to describing present situation and should be deleted.

Page 2-100: First paragraph. The numbers corresponding to the percent should be inserted.

Third paragraph. The acres of each of these ranges, e.g., Arc Dome Area, Kawich Range Area should be inserted.

Page 2-101: Third paragraph. Are the numbers mentioned in this paragraph the total in the ES area? This should occur at the beginning of the discussion on mule deer.

Page 2-102: Acres on the Morray Bench Area should be inserted.

Page 2-103: Second paragraph. The numbers are confusing. A clear, concise, idea of the total estimated mule deer population on the Tonopah Area presently existing does not come through to the reader. What is meant by reasonable numbers for mule deer? Are they existing or is this the potential carrying capacity? It is questionable if carrying capacity should be mentioned, as the important item is the existing numbers.

Page 2-109: First paragraph. First line has 285 animals mentioned and the last line has 900 animals - which is correct? What are the total estimated animals currently on the Tonopah Area? How do these numbers relate? The middle part of this paragraph is historical data and should be deleted.

Page 2-111: Third paragraph. How many Big Horn sheep occupy national resource land on the ES area?

Page 2-113: First full paragraph. What has this to do with describing existing conditions? Is this the carrying capacity? The proposal cannot impact but the existing numbers, and this is what should be of concern.

Page 2-114: Last paragraph. Typical example of type of information which should be deleted from the description section. This could be used in the impact analysis in Chapter 3 to back up an impact conclusion of reduction of Big Horn sheep as a result of implementing the proposal.

Page 2-115: First paragraph. How many are estimated to be on the Tonopah Study Area? What are the critical habitat requirements? Where are the habitat areas and how much critical habitat currently in the area?

Page 2-116: First paragraph. Can some idea of numbers be provided?

Page 2-117: Fourth paragraph, seventh line. What is meant by "particular attention?" (Increased hunting, trapping, aerial shooting, observations, or what?) What is the result of increased attention?

Page 2-120: Last paragraph. The acres corresponding to the percent should be inserted. What is meant by occupied habitat - should be defined and explained.

Page 2-121: First paragraph. This data should be related to allotments. What allotments do they occur in? They should also be shown on a map rather than a list of legal descriptions in the appendix. They should be related to allotments.

Page 2-122: Third paragraph. The information on population should be moved up to occur at the beginning of this section.

Page 2-123: Second paragraph. This information needs to be related to allotments. What allotments do these birds occur on? The chukar habitat should be shown on a map. Do you mean 68 acres of national resource land or 68 square miles? The 68 acres seems low for the total amount of habitat in the study area.

Page 2-125: Last paragraph. Whose area is this Wildlife Management Area? BLM's or F&W?

Page 2-126: Second paragraph. How will this area be impacted by the proposal if it is withdrawn and administered by US Fish and Wildlife Service? Since it is apparently not impacted, this information should be deleted.

Second paragraph, sixth line. Should be (130 acres).

Page 2-128: First paragraph. Species list should not be included in the appendix. They should be made available upon request only.

Page 2-129: First paragraph, second line. "common" in what habitat types?

Paragraph two, first line. States that 22 species of reptiles and amphibians have been identified in the study area and adjacent terrain. However, Table 2-22 lists 29 species in Tonopah Study Area and Table G-3, Appendix G, lists 26 species.

Page 2-130: Table 2-22. What is the impact on these? What is the purpose of listing them if the impact cannot be established?

Page 2-131: What is the impact on the information contained on this page? It is doubtful that any impact analysis can specifically identify an impact on invertebrates and soil invertebrates.

Page 2-132: Table 2-23. What is the purpose of this listing? It is doubtful that any impact analysis can establish the impact of the proposal on these functions. This information is typical of the type of information included in this section which apparently tries to fully describe all animal life on the area without any regard to possible impacts.

Page 2-134: The title should be changed from "Aquatic Habitat" to "Aquatic Life."

Last paragraph. These miles of streams should be related to allotments in a table. Also, what is meant by "adjacent"? This should be defined.

Page 2-134: Table 2-25. This information should be correlated with the proposed allotments and shown in the table.

Page 2-137: Second paragraph, sixth line. States "lists the waters and condition . . ." State what kind of "waters" (ponds, lakes, reservoirs).

Page 2-138: Table 2-26. This information should be correlated to the proposed allotments in the table.

Page 2-140: How many miles is 2/3rds of the shoreline in the first paragraph? The caption for Figure 2-9 should not repeat the information that is contained directly above the figure.

Page 2-141: First paragraph. Does any AMP cover this area? Are there going to be any impacts on this area from the proposal? If not, there is no need in including this in the description.

Sixth line. "For a photo of" is unnecessary wording.

Visual Resources:

Page 2-166: Third paragraph. This paragraph describes scenic quality ratings, but the explanation of these ratings is not discussed until page 2-173. The discussion of quality ratings in this paragraph should be eliminated.

Page 2-167: It appears that the only areas of visual resource sensitivity are around recreation areas and 21 other "scenic zones". Roadways should also be considered areas of visual sensitivity since they receive relatively heavy use. There should also be a map included at this point which illustrates these 21 scenic zones.

Page 2-168: Table 2-32. This belongs in the Recreation Resources Section and should be deleted here.

It would save space by referring to Table 2-37 instead of printing the same table twice.

Page 2-174: Second paragraph. According to BLM 6310, there are only three visual zones. Why are four zones described here?

Page 2-176: Six Mile Canyon Back Country Area is described as being entirely Class I. On this page it is Class II. Need to straighten this out.

Page 2-179: Immediately following this page should be a map of the VRM classes within the area. This map should be here rather than in Chapter III.

Cultural Resources:

Much of this section is historical in nature and has to be deleted. The important part is to describe the sites on the area, the conditions and the potential for new sites.

Page 2-183: Third paragraph, last line. What is the purpose of citing this BLM Information Memo? It would appear that it would not need to be cited.

Page 2-184: Information here appears to be describing inventory methodology procedures which should be placed in the appendix. The results of this inventory procedure should be all that is located in the text.

Page 2-188: Again methodology appears to be described here. This should be located in the appendix.

Page 2-189: After many pages of historical data which has no meaning for impact analysis, the meat of the section starts at the bottom of this page. This section on cultural resources should start at this point after a brief introduction.

Page 2-192: Table 2-33. The rating definitions should be defined as a footnote to this table.

Page 2-202: Table 2-36. This entire table has to be deleted. It is not ES material and does not pertain to the environmental statement process. It also does not add anything to the description of existing conditions.

Page 2-206: Again, the data here appears to be methodology and techniques which should be located in the appendix.

Page 2-209: This page should be deleted as there are no impacts on paleontological resources.

Land Use:

Controls and Constraints:

This section is not to be a historical section. The purpose of this section is to describe any existing, presently-in-place land use controls and other constraints which would impact or interfere with implementing the proposal or through implementing the proposal would impact any land use plans, controls, or constraints. The data currently located in this section is immaterial and should be deleted.

Recreation Resources:

Page 2-218: Table 2-37. This is the same as Table 2-32. How will the proposal impact each of these items? The purpose of this section is not to provide a picture of the total recreation resource to the reader but to describe only those segments which would be impacted by the proposal. The information contained in this table should be reconsidered and only that pertinent to impact analysis should be retained - the rest deleted.

This table is excellent. Another table following it which breaks use up by activities would be most helpful in evaluating impacts on various activities.

Page 2-223: First paragraph. The description of activities has neglected ski-touring and snowmobiling. There surely must be some of this activity in an area which receives 40 to 80 inches of snowfall annually in some places (2-7).

Third paragraph. " . . . known to be significant resources . . ." The term "significant" may be misleading. How much is significant? Some figures, even estimates, might be helpful.

Page 2-225: This table contains future conditions. Future conditions are not described in this section of Chapter 2. This information has to be deleted and placed in the Future Environment Section of this chapter.

Page 2-226: First paragraph. What is the correlation to the proposed allotments?

Second and third paragraphs. Should be deleted as there is no apparent impact of the proposal on these items.

Page 2-227: This information on this page should be deleted as there is no impact of the proposal. Besides, we should not recognize an illegal act.

Page 2-228: What is the impact of the proposal on off-road vehicles? If a definite impact can be established then this data may remain. Otherwise, it should be deleted.

Livestock Grazing:

Page 2-229: First paragraph, last sentence. This map showing existing facilities has to be moved to this point in the document, and removed from Chapter 1.

Page 2-239: Third line. How can private land be a percent of national resource land? Do you mean 7/10 of one percent of the study area?

Agriculture:

Page 2-241: Second paragraph. This information is immaterial for impact analysis and should be deleted.

Grazing Systems:

Page 2-247: There is no impact on this. This information should be deleted.

Social Economics:

The information in this section on trends, historical data, and data on topics not impacted should be deleted. What is needed is a brief, concise coverage of employment sectors, relationship of ranchers on the area to employment, and to the total employment picture. Need to cover income earnings by sector and relationship of the Tonopah Area. Need to identify the livestock industry income and the relationship of the income from the Tonopah Area to the livestock industry. Need to describe the tax base and the relationship of the operators for the Tonopah Area to the tax base. The rest of the information is immaterial and should be deleted.

Page 2-249: First paragraph. A description of the location of the area is not needed. This has already been provided in Chapter 1.

Second paragraph. A historical summary of the area is not needed. What is needed is a brief, concise, precise description of the existing conditions that may be impacted by the proposed action.

Page 2-250: Information is immaterial and should be deleted.

Page 2-251: First paragraph. All but the first sentence should be deleted. Immaterial for impact analysis.

Last paragraph. What is the relationship of this data to impact analysis? There is no apparent relationship - it should be deleted.

Page 2-252: The number for 1980 projection should be deleted. This is the existing situation section.

Page 2-253: Second paragraph. No apparent relationship between this data and impact analysis. It should be deleted.

Page 2-254: The proposal will not have any impact on education; therefore, this data should be deleted.

Page 2-256: The proposal will not have any impact on other public services; therefore, this data should be deleted.

Page 2-257: First partial and first full paragraphs. Should be deleted.

Third paragraph.(Income and Employment). No information is presented on per capita or rancher income, yet Chapter 1 (proposed action) alludes to potential (i.e., grazing management systems) effects on specific sectors of the economy (i.e., agriculture, wholesale/retail trade, and selected service sector industries). Data is needed in the ES that references the economic dependence of existing population, and economic sectors on the range livestock sector of agriculture, and how the proposed action, and alternatives will affect the human environment. The socio-economic profile referred to in the ES provides specific data on:

1. Rancher Dependency on BLM Forage
2. Industry " " " "
3. Community " " " "

These data would provide a base for determining the affects of the proposed action on the human environment.

Page 2-260: Second paragraph. The paragraph leaves the impression that ranching occurs only on NRL. No reference is made to how NRL is used for agricultural production (i.e., livestock grazing) in conjunction with private base lands, or visa versa. Do the ranchers own only the water base? A rewrite of this section is needed to clearly describe the process for domestic livestock use of NRL in conjunction with all lands involved.

Page 2-262: First paragraph. Conclusion is drawn that a major expansion of hunting and fishing "would" challenge rural patterns (i.e., lifestyles). This appears to be an impact conclusion, not a description of existing conditions. These types of conclusions should be deleted from this section of Chapter 2.

Page 2-265 and Table 2-46: The narrative is an approximate description of the trends in ranch ownership, economies of size, etc., but the source for what has, or will occur in the Tonopah Resource Area isn't provided. Are corporate ranches increasing? How are people affected? Are they retiring in town?

Page 2-266: First paragraph. Delete last sentence. BLM grazing regulations call for the Secretary to establish grazing fees based on the fair market value of the forage (43 CFR 4130 4-1) but the statement is inappropriate in a description of the environment (i.e., social/economic conditions).

Future Environment:

Page 2-270: This entire section will need redrafting as it lacks any quantification at all. Until the items are quantified there can be no comparison drawn between the proposal future and alternatives. This section also contains discussion of trends; which information should be deleted. The purpose of this section is to describe the condition of the environment at the end of 15 years.

Expected changes have to be quantified as much as possible. Levels, degrees, and modes of change are expressed as exactly as possible. The task is to describe what the environment may look like at some future point. It is not necessary to go into detail as what will cause the environment to be in whatever shape that it is predicted to be in. As discussed, think of this section as stepping forward in time, taking a snapshot of the environmental elements and then describing in words how they look. The conditions have to be described in the same terms as used in describing the present environment. Use of tabular data and charts and graphs is encouraged.

Page 2-270: In this part on possible future environment without the proposed action, climatic trends are written off. This is a mistake, particularly for precipitation data which is a basic input to range cover production. Suggest a moving average or other harmonic analysis of some long-term rainfall stations be presented. There are numerous time series techniques which apply to this Section. Suggest consulting V. Yevjevich, "Probability and Statistics in Hydrology."

Page 2-271: Assumption No. 2. The second part of this assumption is an incorrect assumption. This has to be based on analysis. You cannot assume vegetative response and improvement.

Assumption No. 6. What are the horse numbers to be held to?

Assumption No. 7. Is not required to describe future conditions and should be deleted.

Soils:

Page 2-273: The amount of erosion needs to be quantified. The loss through wind erosion needs to be quantified. The change in soils surface factor should be quantified. A map could be drawn to show the predicted change in conditions.

Water Resources:

Page 2-273: First paragraph. If erosion increases, won't sedimentation? Also, reduction in water quality with no protection of stream banks. Predicted changes need to be quantified.

This conclusion on runoff peaks with and without AMP implementation had best be substantiated. By what method was this determined? What is a "peak runoff"? For what storm sizes? Runoff referenced to where on the watersheds? Strongly suspect that the analyst has assumed runoff will follow plant cover trends. This is nothing more than a guess! How can it be concluded that surface water chemistry will remain static when, to this point in Chapter 2, surface water chemistry has not been characterized according to any time base.

Vegetation:

Page 2-274: This whole section needs to be quantified as to expected conditions in terms similar to that asked for in the existing situation section, e.g., ground cover, species composition, range condition and productivity.

How much would vegetation improve on the AMPs? Quantify the acres. Quantify the changing conditions. How much would vegetation deteriorate? Quantify the changing conditions and trend. Also show the change and condition and trend on a map. Need to describe exactly the change in ground cover and composition of species. What will the specific differences be?

Third paragraph. Define desirable; describe the changes.

Wildlife:

Page 2-277: Don't describe how the changes will come about but describe the precise conditions predicted within 15 years. What will the populations be of the various species at the end of 15 years? What will the changes in habitat be? Predict the changes, describe precisely. Quantify the changes.

Wild Horses:

Page 2-283: First paragraph. Impacts should not be discussed here. The expected condition should be portrayed, e.g., number of animals and range conditions.

Controls and Constraints:

Page 2-290: This information should be deleted. It does not describe what the conditions will be at the end of 15 years. Suggest deletion of this section.

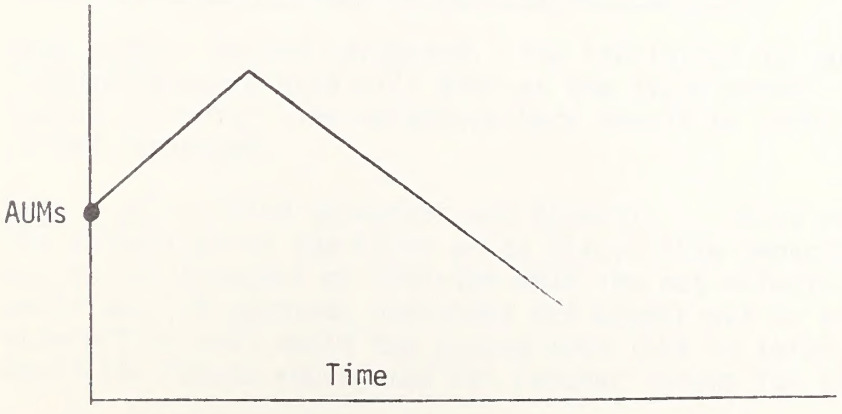
Recreation Resources:

Page 2-292: What are the predicted visitor use days in the 15 years for those uses expected to be impacted by the project?

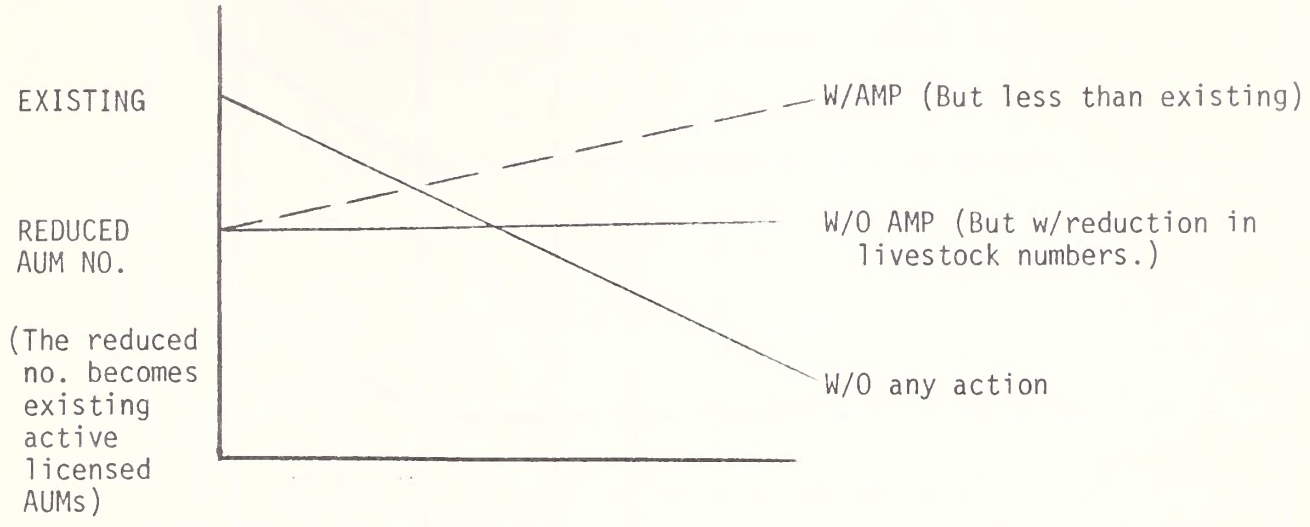
Livestock Grazing:

What are the predicted AUM use levels at the end of 15 years? What are the predicted amounts of livestock use on the area at the end of 15 years, taking everything into consideration and other proposed developments, such as agricultural developments?

Page 2-294: Second paragraph. What is the rationale for projecting a short term increase in forage production under the future without AMPs? Graphically what is said looks like the following:



If condition, and trends are in a downward, declining condition what would prompt the initial increase? Reductions in livestock could result in a gradual AUM increase over time as follows:


EXISTING
REDUCED AUM NO.
(The reduced no. becomes existing active licensed AUMs)
W/AMP (But less than existing)
W/O AMP (But w/reduction in livestock numbers.)
W/O any action

The section (Page 2-294, second paragraph) needs to be rewritten to clearly explain what will happen in the future without the AMP. Graphs could be used if they would better explain the future scenarios.

Transportation - Utilities:

Page 2-299: Since these items have not been impacted by the project there is no need to describe their future condition.

Socio-Economic Conditions:

This section fails to specifically identify and quantify the expected socio-economic conditions at the end of 15 years. What are the expected income levels by sector and what role will the livestock industry play at that point in time? If grazing use on national resource lands decreases during this time period then what will be the socio-economic conditions at the end of 15 years for these sectors. This data has to be quantified. This section is not to describe impacts, but only what the conditions would be at the end of 15 years.

Future Social and Economic Conditions - W/O AMP:

Page 2-302: Second paragraph. The conclusion is made that population in the Tonopah Resource Area will grow as the State grows. What's the rationale, or backup for this? The reference here should be consistent with page 2-257, second paragraph.

Page 2-307: Third paragraph and Appendix L. What would be rancher income? The authors raise questions as to discernible impacts on the ranching economy, but do not forecast or describe what the net effects of the future w/o AMPs would be. If marginal operators are bought out by corporate-commercial ranching enterprises what would the future look like in terms of the economy? What would the future aggregated net rancher income for the Tonopah area be?

ALLOTMENT	VEGETATION TYPES	ACREAGE IN VEGETATION TYPES	PERCENTAGE OF ALLOTMENT IN EACH TYPE	PRESENT PRODUCTIVITY IN AUMS	POTENTIAL PRODUCTIVITY IN AUMS	PERCENT COVER	RANGE CONDITION											
							CATTLE			SHEEP			HORSES			APPARENT TREND		
							GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR	UPWARD	STATIC	DOWNWARD
	Type A			Allotment Wide Figure	Allotment Wide Figure													
	Type B			"	"													
	Type C			"	"													

CHAPTER 3

The examples used in these general comments are symptomatic of the problems throughout the entire chapter and should be used in that context. Due to the many problems experienced throughout the chapter it was not possible to provide a detailed, page-by-page review and indicate the many areas that corrections have to be made.

The major problem in the chapter is that in no case is there a bottom line impact of the total proposal on each environmental element. There are impacts of each part of the proposal, for example, grazing systems, but nowhere is there a summation and analysis of the total cumulative impact of implementing the complete proposal on each environmental element. Impacts have to be aggregated and quantified on the allotment and total area level. Pasture level detail should be available in backup information and be available for review upon request but inclusion of pasture level detail in the document itself results in a voluminous document.

There is almost a total lack of specific quantification in many of the sections. Beneficial and adverse labels on impacts are not to be placed in Chapter 3. Merely analyze and describe the impact without describing whether it is beneficial or adverse. The public will put their own labels on it when they read it.

The analysis does not clearly indicate the causes. The subtopics should be:

A. grazing systems
    1. four pasture, rest rotation, 103,600 acres.
    2. four pasture deferred, rest rotation, 133,500 acres, etc.
B. elimination of grazing, 32,500 acres
C. improvements, 2,000 acres
D. land treatments
    1. spray and seed, 36,600 acres
    2. spray, 3,200 acres
    3. chain, 2,650 acres

Bottom line cumulative impacts of these component parts over the 15 years measured and described at the 15 year point are required. The order of discussion should be the same as presented in Chapter 1. The effects on impacts should not be placed in the appendix, e.g., erosion rates. Methodologies and techniques of analysis are appropriate for appendix material. All effects and impacts should be located in the text.

Sections within Chapter 3 are not correlated or interrelated between each other. For example, soils predicting a 10 percent reduction in runoff; however, water resources says runoff would not be affected. Sections have to be correlated and interrelated between each other.

Although a definition for short-term impacts was provided, they are still not well defined, analyzed or documented. Few short-term impacts were analyzed. Some examples are possible short-term impacts on soils and water quality from increased use in small areas due to all use being confined to one pasture instead

of spread out over the allotment; and short-term impacts on soil erosion as a result of chaining and seeding projects.

The analyses are not specific as to what the impact is. For example: Although this deer area was shown as deficient by 146 AUMs, the major competition in the past was from wild horse use which would continue to have an impact on the vegetation when coupled with cattle use. What is the impact? The specific impact was never identified nor analyzed.

The analyses often stop at identifying effects without continuing the cause-effect-impact chain to the impact. For example: The added density of livestock with the increased forage utilization would result in forage competition (effect) or exclusion (effect) of big game to adjacent pastures free of livestock. What are the impacts of these effects?

The discussion utilizes too many subjective terms to describe impacts without defining them or establishing some range of parameters. For example: Competition would be light to moderate, a result of high cattle - mule deer overlap, would result in significant use. These subjective terms such as light, moderate, high, significant have to be defined and/or parameters placed on them so that the reader understands the impact and the amounts of impact being described.

Allocations of forage are not being directly analyzed by this ES. Except in chapter 1, forage allocations should not be mentioned. For example, although 6,223 AUMs for forage are allocated to mule deer in this allotment, would result in competition for quality browse in spite of the forage allocation. The analysis of impact is based on the proposed use level established in Chapter 1 for domestic livestock. On any given area livestock will be using a given amount of forage. If, by use of that amount of forage, or because of the type utilized, sufficient forage is not available for the numbers of wildlife and wild horses, then what is the impact on wildlife of the lack of forage and/or the lack of the proper type of forage? Will nutrition, fawn crops, etc., be affected? Then, finally, what is the impact on population numbers. All mentions of allocations in this chapter should be deleted.

Comparisons with existing grazing use are frequently drawn and all comparisons of this nature should be deleted as this is an incorrect analytical procedure. Some examples of this are: Would continue or maintain the existing deterioration of the riparian vegetation, already in reduced abundance from past grazing excesses, and concentration would continue under proposed systems. Impacts cannot be described on an "if" project type basis. If a procedure is not clearly described in Chapter 1 then the analysis has to proceed on the basis that the feature will not be accomplished. For example: This would have an adverse impact if a wide buffer strip is not left between the spray project and the stream. Unless the description of the project in Chapter 1 clearly stated a buffer strip would be left, then the impact has to be analyzed on the basis of no buffer strip.

Assumption of achieving objectives cannot substitute for impact analysis. All assumptions made that objectives will be achieved have to be deleted. Some examples are: Assuming the objectives would be met as outlined in Table 1-2,

full qualifications would be restored over the long term. If the quality (vigor) and quantity of forage improved (in accordance with AMP objectives) it is possible that the quality AUMs would increase. We cannot assume that objectives will be met. That is the purpose of the analytical process to determine if the objectives can, indeed be met by implementing the proposed action.

In many cases the impact analysis documented in the text fails to answer critical questions which the analysis has to answer. A couple of examples will serve to illustrate this point:

1. "There are two perennial streams in the Wagon Johnnie Allotment (Clear Creek and Danville Creek) that would be heavily grazed every year by either livestock or wild horses. It is not expected that streamside vegetation for those streams would increase in vigor or cover. In fact the riparian zones would become heavily grazed regardless of the season of use. These same impacts would occur around the periphery of Little Fish Lake and compound the impacts on pastures which receive yearly use."

Would vigor or cover decrease? How much? This has to come from the analysis of impact on vegetation. Why would riparian zones become heavily grazed? How much? How do you know? What are these same impacts? As yet, no impacts on the two streams has been specified. What is the impact? How much impact? How do you know it would occur? In addition, streams are not grazed, vegetation is grazed. What cause-effect impact chain is the analyst trying to show in this analysis?

2. "The concentration of livestock in the proposed pastures with subsequent movement and associated actions would occur at a period of peak stress for wintering mule deer, thus excluding deer from the use area for at least a period of initial activity. The increased density and additional human disturbance related to the proposed action could adversely affect wintering deer through exclusion from customary use areas and competition for forage."

How and why would it exclude deer? How do you know it would? How could it adversely affect deer? How do you know? What is the specific impact? How much impact? To be complete, this chapter has to clearly, precisely, and critically identify, analyze and describe the specific impacts which would occur from the proposal through the period of time. All impacts have to be traced to the point where they become insignificant. All sections have to be interrelated with each other. The cumulative total bottom-line impact of implementing the proposal has to be identified clearly in the text.

Specific

Page 3-2, last paragraph. This should identify that the impacts are described at the end of 15 years and that they are the cumulative impacts of the total proposal - not of its component parts. Individual impacts may be short-term or

long-term. However, the absolute necessity is to describe the total cumulative impacts utilizing the point of time of 15 years for the long-term cumulative impacts.

Page 3-3, Table 3-1. It is not just enough to place this information here at this point. It should be used in the impact analysis. Its use throughout the analysis, particularly in the Vegetation Section, was not apparent.

Page 3-4, Table 3-1. Miles should be indicated by the pipeline listing. Also Table 1-1 shows 32 springs while this shows 33. Which is correct. The acreage figures, as commented on previously, in Chapter 1, should be rounded.

Page 3-5. Many of the assumptions are incorrect and should be deleted.

No. 1 - This cannot be assumed. The development of the proposal has to be based on budget plans and expectations. If it is not expected that money would be available to fund the proposal, then the proposal has to be scaled back to the level that is expected to be funded.

No. 2 - This does not appear to be an assumption. Isn't it a characteristic of the proposal and part of the impact analysis? What is the purpose of making this assumption?

No. 3 - As discussed in General Comments, it is not possible to assume achievement of objectives. This has to be deleted.

No. 5 - This is an appropriate assumption, however, it should be explained more fully, and rationale as to why this assumption was developed and why the 2 year time frame.

No. 6 - Same comments on this assumption as for number 1. Proposal has to be based on budget expected. If not, then the proposal has to be scaled back to what would be expected to be funded.

No. 7 - This doesn't appear to be appropriate assumption. Shouldn't this be the result of the analysis and the result of implementing the proposal - not something to be assumed.

No. 8 - How can this be an assumption. It has to be part of the proposal. Wasn't it included in the proposed use levels shown in Chapter 1?

No. 9 - This is a definition of impacts - not an assumption.

No. 10 - This doesn't related to impacts and isn't needed in order to analyze impacts.

No. 13 - Wasn't the proposal described this way? We cannot assume that this will occur. This has to be part of the design and described in that fashion.

No. 14 - This has to be part of the design of the proposal and described in Chapter 1. It cannot be assumed.

No. 15 - This cannot be an assumption - it has to be part of the proposal commitment - otherwise it is not expected to be accomplished.

Topograph and Geology

Page 3-8. Delete. No negative declarations are needed.

Air Quality

Page 3-9. These impacts are so small and insignificant as not to warrant mention. One paragraph would suffice. Rest of it should be deleted.

Soil and Water Resources

These elements cannot be combined. A separate impact analysis section has to be prepared for each of them, as they were described in Chapter 2.

Water

There is little or no discussion as to the effects of the proposed action on phreatophytic communities which consume great quantities of water from the zone of saturation.

Synchronization and desynchronization of flood flows has not been addressed. Grazing system proposals may very well supplement some of the subwatershed turbidity flood peaks.

Intuitively it would appear that more cropping of browse species would tighten the crown in the first few feet, thus allowing more effective snowtrapping. How would this compare with the additional soil water needs of the aniticipated plant cover increases?

By using such an analysis as the SCS runoff curve number technique, the team could compute change levels in peak discharge associated with a chosen design storm depth. The curve number technique has been refined by Hawkins at Utah State University to be sensitive to quantitative cover, hydrologic soil group and maximum potential infiltration rate. Given some channel geometry surveys for area, wetted perimeter, gradient and Manning's "n" you could use relationship developed by Twenhofel (1939 - American Geophysical Union) to compute the maximum potential sediment transport energy under various peak flow regimes. This is the closest you can get to estimating changes in sediment yield. Another similar parameter which could be computed is streampower (after Frickel, et al., 1975).

Evapotranspiration is the largest fraction of the water budget in the study area - perhaps 80 percent. It is a function of atmospheric demand, plant cover, litter and bare soil. All of these factors with the exception of atmospheric are within the realm of range management and will be modified by the proposed action. Yet no evidence is provided in the PDES to show that the supply-demand aspects of soil water have been evaluated for the plant cover changes anticipated. This is a serious omission. Lots of watershed research data from Utah, Colorado, California, Arizona and New Mexico are available to address this area.

This question is probably best approached by taking a hard look at the climatological data available particularly pan evaporation, shortwave solar radiation, air temperature, and monthly precipitation.

How will implementation of the proposed AMPs and associated land treatments affect the effectiveness of national resource lands in producing groundwater recharge?

To cut down on the area which needs to be looked at in detail in terms of water quality impacts, we would stratify the entire area in terms of its hydrology into zones where hydrologic effects (quantity and quality) will be retained on site versus other zones where because of continuous surface water networks, hydrologic impacts can be "pulsed" off-site to private, other lands where the effect is of concern to someone else. Then concentrate on water quality impacts in the zones of potential off-site effects and impacts.

The land treatments (chaining, spraying, seeding) are inadequately assessed insofar as watershed effects and impacts are concerned.

Soils

It is true that estimating the impacts of management treatments on water and wind erosion will rely heavily on the judgements of experts in the field; however, this is not an excuse for not doing it. The Bureau has provided some general tools for making these estimates, particularly for water erosion. The range specialist should estimate progressive cover factors for short- and long-term management. This figure should then be plugged into either the Musgrave equation or the PSIAC method to calculate an estimated erosion rate. This estimate for each soil should then be proportioned for the number of acres in each pasture then the total erosion rate summed for that pasture and totaled for the allotment.

Wind erosion need not be quantified as precisely as water erosion due to the general lack of adequate methods for measurement. Table D-2 may be sufficient for this purpose.

Page 3-12: There is a body of information on infiltration rates (soil water intake rates) versus grazing use parameters. Whether or not soil compaction effects are short-term or more lasting is debatable, but recovery rates cited by Gifford, et al. (1975) indicate 4 to 13 years for infiltration rates to return to pre-grazing levels. The compaction impact cited by the author(s) of Chapter 3 would result from a.) initial increases in plant utilization, b.) concentrating at water sources and c.) concentration of livestock into a smaller number of pastures for portions of the grazing cycle. There is no published evidence this reviewer is aware of which would support the PDES contention that "as forage abundance and quality improve, the soil compaction effect would become negligible." This assertion of such an overwhelming dependence of soil compaction upon good forage conditions is in fact contradicted by Gray et al., 1969: (Infiltration Characteristics of Prairie Soils, Annual Meeting, American Society Range Management, Calgary, Alberta. 16 pp). In that paper some 37 variables affecting infiltration rate are cited, including fluid properties, porous medium properties, moisture content, organic matter, and salt content.

Refer to the attached table from Gifford, Hawkins, and Williams (1975) for infiltration rates as measured under different range conditions and grazing intensities.

First paragraph. What is meant by Watershed? This is an undefined term. Also what is meant by trend data? What trend data?

Second paragraph. How much would wind erosion be reduced and how much would ground cover increase. Why would increased vegetative cover reduce wind erosion.

Third paragraph. How much short-term increase would occur. Define what is meant by initial high-use. Delete negative in the next to last line. Why would these impacts become negligible? What is meant by negligible?

Fourth paragraph. Define what is meant by localized areas. Where? How much?

Page 3-13, first partial paragraph. How many acres of these soil types in the area are being impacted?

First paragraph. It would appear that wind erosion could be quantified if vegetive cover density is known. Why can't it be quantified? It has been quantified for other areas in other statements.

Last paragraph - How much increased ground cover would result?

The statement is made at the base of this page that, "The increased groundcover resulting from the proposed grazing systems would cause a slight decrease in regional sediment yield over the long-run." Hormay's 1970 "Principles of Rest Rotation Grazing and Multiple Use Management" is the source cited in the PDES to substantiate the above quote. A close review of the PDES citation reveals the following facts: 1.) Hormay does not even mention sediment yield in his cited publication, 2.) Hormay therefore has no basis in his paper for making such sweeping generalizations concerning changes in sediment yield and 3.) Hormay has no mathematical functions or even conceptual relationships which relate sediment yield to plant cover in any predictive sense. Therefore, the above citation to Hormay appears to be an incorrect citing which would cast suspicion on the analyst's professionalism as well as cast doubts on the objectivity of the entire ES.

Page 3-14: The assertion that anticipated ground cover increases would result in greater water retention in soils by reducing overland flow in theory is correct, assuming that we are talking about a percent cover of 40-70 percent, and that all other factors (especially infiltration rates) remain constant. However, the plant cover increase effect will be offset by the infiltration effect. The net effect on overland flow must be analyzed for specific storm return periods, durations, hydrologic soil groups and vegetative types. It is the net effect which will, when routed through the watershed, determine what happens to the hydrograph of overland flow. The PDES is jumping to conclusions much too fast at this point. Much computation is required to be able to claim a change in overland flow. Therefore, the extension of the overland flow reduction to a soil water savings is totally a guesstimate, as is the linkage to soil stability and sediment yields. This has to be supported by analysis before this conclusion or guesstimate can be made.

First partial paragraph states that management will reduce sediment yield while paragraph 3 states that one number (Table D-4) covers sediment yield values for the present and future situation. This would seem to be a contradiction.

Define what is meant by slight increase.

Delete the parenthetical insertion - beneficial impact.

First paragraph - second line. Where and how much localized increases?

Third line. What is meant by initial higher use? How do you know? What is the statement "as forage abundance and quality improved" based on? Delete negatives. Why would the impact become negligible?

Second paragraph. Quantify anticipated ground cover increases. Why would it result in increased soil stability? Why would sediment yields be reduced. How do you know? Quantification by allotment should be added. Total for the area should be added in the text. Don't relegate impacts to the appendix.

Last paragraph. Use 1956 acres is insignificant when compared to 4.4 million acres. Explain what is meant by long-term localized impacts. What is the specific impact? Merely using the word, "impact", does not convey the meaning as to what impact is being analyzed.

Page 3-14: - The infiltration rate reductions are in fact partially offset by the effects of frost action, as is stated in the PDES. Gifford, et al. (1975) found an inconclusive body of data surrounding the question of infiltration rates versus fall and/or winter grazing. This is undoubtedly due in part to freeze-thaw processes within the soil profile. It would not be too bad to assume that any soil compaction effects on infiltration rates within fall and/or winter grazed pastures are offset equally by the improvements in soil structure caused by soil freeze-thaw processes.

These are effects, with what impact on the soil's productive capacity? Define what is meant by "undergo minor diversions."

First paragraph, Item 1 - How much? Item 2 - How much area would be involved? How much sediment yield? If this impact is unquantifiable, how do you know it is negligible. It would appear that quantification would first have to be obtained before the judgment can be made as to whether it is negligible or not.

Last paragraph. What is meant by "if"? Will they not be established? Are you trying to relate that it has a low probability of success or is the picture trying to be shown that seedings may or may not be established. The analysis has to be based on description of the proposal and the proposal cannot be described on a "if/or" basis. What if seedings are not successful and the area receives a heavy rainfall? What is the probability of this and what would the impact be if it did occur?

Page 3-16. How does the heading at the top of the page relate to previous subjects - wind erosion and water erosion? Don't switch from causes to effects as subtopics.

Again, as in the comment for Page 3-14, the "professional judgment" that improved vegetative vigor would increase ground cover and reduce regional runoff 10 percent is totally unfounded and should be either substantiated with analysis or be eliminated. There simply is no way to make a professional estimate as to this hydrologic response without a good analysis and a documented methodology for making such estimates.

How do you know that eliminating grazing in the Hot CK and Wagon Johnnie allotments would reduce the sediment yield? There is no sediment discharge record there now. Sediment discharge may originate as channel erosion or sheet erosion. Some sites within these two allotments have no potential to produce surface runoff on site other than simply filling depression storage. How is all of this simplified to this general conclusion in the absence of any actual data on some structured analysis leading up to this conclusion?

First paragraph. Who says vegetative vigor would improve? How much would overall ground cover increase? Why would regional runoffs be reduced? How do you know? 10 percent of what? A thousand - two million - one hundred? How much runoff is being reduced?

This paragraph is difficult to understand. It talks of improved vegetative vigor decreasing runoff by 10 percent, then describes natural runoff in Table D-2 described in terms of "ponded" to "very rapid." What is 10 percent of "ponded"? If runoff decreases 10 percent, why does sediment yield remain the same (Table D-4)?

Second paragraph. What is meant by quantification of soil related runoff has not been attempted for this area? Sounds like you just haven't had time to do it and it will be done. It should have been done prior to writing this text.

Last paragraph. What would the sediment yield be reduced to? From what to what? Define "minor." How do you know it will be minor if you can't quantify? Please quantify sediment yield production.

Page 3-18, Table 3-2: How can wind and water erosion be estimated for each pasture if they have never been quantified? This table may be close to actual future conditions, but backup data is required.

Page 3-18, Table 3-2. Comments made on the first page will serve to indicate the problems with the remainder of the table. Data in the text should be aggregated to the allotment for presentation. Pasture level detail should be made available upon request only. This table doesn't answer - why - how do you know? Subjective terms are not site specific descriptive. The table is labeled "Site Specific Impacts." But what are the specific impacts. There are no impacts indicated in the table. There is no quantification. The title also says "Water Resources" but there is no mention in the table of water resources.

Second column. Pasture 3 would increase slightly. Why?

Fourth column. Pasture W-1. What is the impact? Disturbance is effect. What is the impact of this disturbance.

Sixth column. Pasture 3 - quantify the 10-20 percent. Pasture 1 - decreased to slow what?

Seventh column. Pasture W-1 - protection of Blue Eagle Springs is not an impact. What is meant by this. What are the impacts on soils and water resources.

Page 3-25 - Pastures 2 through 6. If these are the same as above, why take up the space to say it five times.

Page 3-31, last column. Reduce stream channel erosion. However, no stream channel erosion or streambank stability was described in Chapter 2.

Page 3-32. The impact on groundwater can be stated in less space than this but since it is so insignificant, it doesn't really merit any discussion at all. However, it could be simply stated as follows: "Thirty-three wells would be developed." Assuming the wells would be pumping an average of five gallons per minute for 12 hours of the day yearlong, they would withdraw 133 acre-feet of water from the ground-water reservoirs. When compared to the combined annual yield of the hydrologic basins (- acre feet) 133-acre-foot use would be insignificant.

Page 3-33. If it is thought that implementation of the proposed action would cause a minor long-term improvement in regional water quality, then there must be a set of data which supports this hypothesis. What is the regional water quality picture in space and time? We know that its characterization has not even been approached in this document. At a given sampling point there is a certain variability in a constituent day by day. The variability may be great, particularly within a rainfall event. Overlaying the spatial issue complicates this variability. The regional water quality levels are so variable that the water quality data possessed by the Battle Mountain District is not able to accurately characterize the regional water quality. It is highly unlikely in view of this fact, the even a major shift in regional water quality could be discerned against such an inadequate set of baseline data, let alone the "minor longterm improvement" expected by the PDES.

The document states that any change in quality of water would have no effect on surface water useage. Chapter 2 and 3 point out to the reader that some ground waters and surface waters are of such poor quality as to severely limit human or wildlife useage. Does this not then link the notion of acceptable water quality to water quantity utilization (useage)?

Page 3-33, first paragraph. Define "minor." What about short-term impacts of heavier use in small areas.

Second paragraph, third line. How much less erosion? How much reduction in overall sediment yield? Quantify? Why would reduced sediment loads provide less opportunity?

Pages 3-34 through 3-36 - The allotment-specific water quality projections, while admirable and needed, are not justified in view of the limited degree of analysis demonstrated by the PDES in the area of runoff prediction. They cannot

be accepted (based on present analysis) given that so little quantification has been placed on the plant cover-utilization-infiltration-runoff stages.

Page 3-34, first partial paragraph, first full sentence. Indicates lack of correlation with previous discussion. Page 3-16, first paragraph predicts a 10 percent decrease while this paragraph is predicting no change.

First paragraph. Why would it decrease 80-90 percent? How do you know? 80-90 percent of what? Wouldn't this be an impact realized over the long-term as well as a short-term.

Second paragraph. Starts out with surface waters. This is the Water Quality section. Do you mean surface water quality?

Last paragraph. Why would there be a 80-90 percent decrease. 80-90 percent of what? How do you know? Wildlife will still be in the area. What about wild horse droppings. How long would water temperature gradually decrease? What is the quality now? What is the predicted quality?

Page 3-35, first line. Cannot assume improvements. Impact conclusions have to be based on analysis. What are the predicted vegetative improvements from the Vegetation Section?

First paragraph. Why would there be a reduction in turbidity levels? How do you know there would be a reduction? What has "later in the year" to do with a reduction? How does this correlate to a reduction? Why a shorter period of time than at present? Also, this is a comparison to existing grazing procedures which should be deleted. Regardless of time or season, cattle will congregate on stream bottoms. See Hormay's memo to Rock Springs DM.

Second paragraph. 25 percent of what? How do you know? Why would this occur as a result of decrease of cattle numbers? Why would this result in a decrease? Why would cattle tend to congregate near the fence? 50 percent from what to what. Not from present levels.

Page 3-36, second paragraph. If proposed action does not impact or add to the worsening conditions, don't mention it.

Third paragraph. What is the risk of failure of procedures being followed? These procedures were not described in Chapter 1. Based on Chapter 1 description of the spray process, there will be no controls on the spraying at all. Do not refer to Aquatic Section of Chapter 3 for water quality impacts. All water quality impacts are to be located in this section with a reference to other environmental elements, they could be effected or impacted by a change in water quality. This section has to provide the changes in water quality to be used in the Aquatic Section in analyzing impacts on aquatic life.

Page 3-37. Without specific quantification this summary has no meaning, significance or usefulness to the decision maker. What are bottom-line impacts on soil, productivity, erosion rate, tons lost per year per acre, water flow, quality, sedimentation, and streambank stability.

In the summarizing list of conclusions from this section there is in item no. 3 a concept raised for the first time. This is analogous to a lawyer bringing in a new witness for the closing remarks to the jury. It should also be noted that the thrust of item 3, while unsubstantiated in the previous 37 pages, is also contrary to a large body of literature. Refer to the table 36 enclosed from Gifford, et al. (1975).

Vegetation

This section is totally insufficient to adequately analyze, describe, and identify the specific impacts which will occur on vegetation. This section suffers from a lack of specificity. Pages 3-38 to 3-41 contain general information that can probably be deleted or integrated with a more specific discussion that focuses directly on impacts. For example, on page 3-39 the text states, "Grazing or removal of green leaf material during the early growth period necessitates a plant drawing on stored resources for continued growth. This continual draw on stored reserves reduces the capacity of a plant to produce growth and to produce seed." Instead of providing all this explanation, it is sufficient to say something like, "Treatment A would cause reduced growth and seed production of key species in the allotments where it is applied because grazing during the early growth period forces plants to deplete stored reserves." This section has to consider all impacts - direct - secondary - including wildlife and wild horse impacts on vegetation if they are as a result of proposal.

The vegetation section slights impacts on vegetation types and it does not contain enough discussion of impacts at the allotment level. The information needed in this section is outlined below.

1. Impacts of Grazing Systems.

   a. A discussion for each grazing system similar to the one in the text, but one that relates the impacts of the treatments more clearly to the short- and long-term impacts of the systems. For example, it is stated that the Four Pasture Rest Rotation System "will produce a definite aspect change toward grass." The reader guesses that part of the reason this change will occur is the impact on browse, particularly bitterbrush, described under Treatment A. But the reader cannot be sure because the text does not explain how successive years of the various treatment adds up to the long-term impact.

2. Impacts of Eliminating Grazing.

   A brief discussion of how the expected changes will be brought about.

3. Impacts of Range Improvements.

   What the impact will be.

4. Impacts of Land Treatment.

   Brief discussion of what the impact will be.

5. Table of Allotment -- Specific Impacts.

Specific impacts which quantifies long- and short-term impacts identified in 1, 2, 3, and 4.

a. Changes in plant composition of allotment vegetation types.

1. from grazing only.

2. from combination of grazing and Land Treatment, where applicable.

b. Long- and short-term changes in plant cover. Include 1 and 2 as above.

c. Long- and short-term changes in range condition and trend. Include 1 and 2.

d. Area of vegetation lost to range improvement.

6. Summary of Impacts.

See attached table.

Page 3-38. The general impacts starting on this page should be deleted. They are non-specific. Much of what is said in these general impacts could be used as part of the analysis in analyzing the specific impacts.

First paragraph. Delete - don't philosophize.

Second paragraph. Is yearlong grazing part of the proposal? What is meant by "if" and "this" and "the following paragraph"? This data lays out the many factors but never analyzes impacts of the factors. For example, "spring use, competition, congregation, heavy use, etc."

Page 3-41 - The review of literature as it pertains to the compaction and infiltration arguments is incomplete and lacks treatment of some of the more recent papers on these complex phenomena.

Page 3-43, last paragraph. The following information on treatments could be used as rationale to form the basis of the impact analysis of the various systems.

Page 3-44, first partial paragraph. The deer use has to be taken into account when analyzing vegetative impact of the proposal, if deer use is as a result of some phase of the proposal. Wildlife Section should not be referenced for impacts on vegetation. Wildlife does not deal with impacts on vegetation. All impacts on vegetation have to be analyzed and described and documented here in this section.

Last paragraph. Indicates 20 years. However, 15 years is the analysis point of time for impact analysis in this document. What are the impacts? Should quantify expected changes in ground cover, composition and volume increases. This should be tied to vegetation types and soils. This comment holds true for all grazing systems and allotments throughout the vegetation section.

Page 3-45, third paragraph. Treatment should be standardized so that Treatment A is the same no matter what system. Until the treatments are standardized it will be very confusing to try to analyze impacts of them and to explain them to the reader and to the public. This standardization did not occur in Chapter 1 so that Treatment A is the same regardless of the system it is used in.

Page 3-46, last paragraph, last sentence. What is the impact on vegetation as a result of this completion? Explain and quantify.

Page 3-47, second, third, fourth and fifth paragraphs. What is the impact of all of this? This impact has to be gotten to. How much increase in litter, vegetative ground cover and production?

Page 3-48, second full paragraph. If streamside vegetation is not expected to increase, would it decrease, would it maintain the same condition? What is the condition. Last sentence says "these same impacts." What are these same impacts? What do they refer to? What are the specific impacts?

Page 3-64, Land Treatment. Need to quantify expected results by Allotment the expected changes in ground cover, composition and production. Last paragraph. Would reduce the amount of browse how much? What species would be eliminated? What species would be returned?

Page 3-65, first partial paragraph. What would the production be on these acres at the end of 15 years? There is no mention in the soils section of short-term increase in erosion.

First full sentence. This should be known. These sites should have been looked at. Impact analysis on these have to be site specific. Have to be positive in the proposal for accomplishing these projects. Cannot be an if/or type of analysis or description of the proposed action. What is the chance of the seeding not being successful? What are the changes in composition, density, condition, and production on these areas? What about the impact of the chaining?

Page 3-69, third full paragraph. Where is the map located and what map number?

Wildlife

See comments on structure in Chapter 2. Carry those through into this chapter. Should be structured to deal with the major species and groups of species. Changes in vegetation are analyzed in that section. Those changes which become effects for wildlife analysis are picked up from the vegetation section and analyzed for impact on wildlife species here. This entire narrative is too voluminous and should be reduced to concisely portray, analyze and define the specific impacts on wildlife species.

A wildlife biologist can relate to what has been said and can generally understand what is being said or implied. However, . . . a non-biologically trained individual has difficulty in understanding what is meant by relative terms, such as fair or good range, or what is meant by moderate or high degree of

competition, etc. For that reason, a better description or quantification of the end result of various actions or interrelationships should be given. Examples are provided in the specific comments.

A close editorial review could reduce much of the wordiness in discussing impacts by allotment and/or pasture on big game. With some thought the author could develop a table that would portray the meat of the narrative in much less space. While the text is quite readable and understandable by the average biologist, there is quite a lot of redundancy or duplication of statements on results that may occur with the proposed action.

There are far too many statements relating the impacts that are not described or quantified. Every effort should be made to either describe the exact nature of an impact and its effects on wildlife (what is the end result?) or to actually quantify what the end result is expected to be (approximate winter mortality of 25 mule deer; loss of 20 percent of fawn crop because of poor condition of does in spring; etc.) Some of the undescribed or unquantified statements are related in the specific comments with the unquantified or subjective wording underlined.

Page 3-74, second paragraph, first sentence. This wasn't evident in the Vegetation Section.

Page 3-77, second paragraph. Should be deleted as comparing to present situation, analyze impact of the level proposed in Chapter 1.
Third paragraph, line 1. "Changes in livestock season of use would also have significant impacts on big game populations and their habitat."

Page 3-78, first partial paragraph, second line. These are effects. What are the specific impacts?

First full paragraph. Increased competition is not the impact. The impact is on the animal. What is the specific impact? What is the long-term net impact, specifically?

Second paragraph, line 1. "The short-term impact anticipated is an increased competition between the livestock and big game during and following concentrated livestock use of the grazed pastures." What impact or result does competition have on the population or physical condition of the big game animals?

Third paragraph, line 1. "The proposed grazing systems could have a long-term negative impact on mule deer, and to some extent antelope, by changing the forage composition from browse to grass." What would the "negative impact" result in, in terms or reduction in the deer population, etc.?

Last partial paragraph. What is the specific impact on mule deer?

Page 3-79, first paragraph. Impact on riparian vegetation should be in the Vegetation Section. Impacts should be described in terms of condition, density and composition.

Page 3-79, second paragraph, 6th line. "This impact as related to specific pastures or AMPs is noted under subsequent sections describing affects (effects) on mule deer, seasonal use, and crucial areas." What impact?

Page 3-80, first partial paragraph. The analysis should be analyzing impact of the proposal. The document is not analyzing impact on possible expanded herds.

Second and third paragraphs. Has too much of descriptive material from Chapter 2 located here. Reduce the amount.

Third paragraph, 11th line. --- "and in the utilization of those areas having greatest impact on deer of the region due to limited size and heavy dependence on these ranges." With what end result?

Page 3-81, first full paragraph. Too much duplication of descriptive material from Chapter 2. Don't repeat allocations. Allocations are not being analyzed. The impact being analyzed is that of proposed cattle use. Define what is meant by significant.

Second paragraph, 11th line. --- "Competition would be light to moderate for browse plants, . . .". About what percent overlap in diet, etc.

19th line. ---"result in significant use of forage prior to the time . . . ". What does "significant use" do to the deer herd?

Page 3-82, first partial paragraph, 5th line. --- "proposed action could adversely affect wintering deer through . . .". What would be the result on the herd? How would it adversely affect wintering deer? Why? How do you know?

First paragraph. Don't compare to existing grazing situations. What is existing condition? What is the impact on existing condition? Reword. Delete. Don't mention forage allocations.

3rd line. --- "would increase competition for select species." With what potential result to herd?

7th line. --- "would result in competition for quality browse in spite of forage allocations." With what end result to deer?

Last paragraph. Don't compare to existing grazing.

Page 3-83, first paragraph. If they don't have the proper amount, what is the impact on mule deer?

Second paragraph. Delete forage allocation. Don't compare it to present situation. Analyze the impact of the competition which would occur as a result of the proposal whether it be less or greater than the present situation.

4th line. This is a good example of end result. It states, "would provide an overall benefit to existing populations. The forage allocation, . . . and exclusion of livestock . . . would result in an increase in population from an estimated 750 to 1,500 mule deer, utilizing habitat in the allotment." And,

further, page 3-84, second paragraph, states "While it is not known what impact the identified competition would have on deer numbers and survival, it is assumed that the following impacts could occur: (two real effects are cited).

NOTE: The author should go through the entire impacts section and, insofar as his professional judgment will allow, try to either describe or quantify all statements where an "impact" is stated to occur.

Page 3-84. Delete first full sentence top of page, not impact conclusion.

Page 3-85, top of page. Deterioration of what?

First paragraph. Delete reservation of 11,581 AUMs.

Third paragraph. Delete allocation.

Page 3-86. What is the competition with mule deer. Projected increase of what? Last sentence is immaterial for purposes of this analysis.

Page 3-92. What is the total impact on mule deer?

Page 3-95, third paragraph, 7th line. Should be effect, not affect. Same on Page 3-100, 2nd line.
Fourth paragraph, 4th line. What does "expanded numbers" refer to?
COMMENT. We should make sure that all reservations of AUMs of forage for big game (in this case bighorns) are in the pastures, or in the specified crucial ranges, used by the big game, Not just in the right allotment! However, as noted elsewhere, mention of forage allocation should be deleted.

Page 3-101, last paragraph. Don't discuss mitigation in Chapter 3.

Page 3-106, first full paragraph. Don't compare. Describe what the impact is of the proposal.

Page 3-107, last paragraph. Where is this described in Chapter 1? Which allotment does this occur in? Is this actually a part of the proposal or is this a separate proposal of the wildlife habitat management plan. If it is a separate proposal then impacts would not be analyzed in this statement.

Page 3-108. This statement is not analyzing the impact of wildlife habitat management plan. Is there any impact of this proposal on this area?

First paragraph, 1st line. Can't understand what is meant by first sentence, "The Railroad WHMA could also be detrimental to optimum waterfowl production . . ."

Page 3-109, first full paragraph. The studies should be cited.

Page 3-111, first paragraph, 4th line. A duplicate sentence here.

Page 3-117. Why is nothing said of the soil and water effects of land treatments?

Page 3-120. This entire page should be deleted. As discussed previously, we do not impact forage allocation. Also, we do not impact predator control.

Page 3-123. General impacts should be deleted. They are not site specific and could occur anywhere. Deal with specific impacts of the proposal on the specific area.

Page 3-124, second paragraph, 4th line. Leave out the word "in". Also, fourth paragraph, 5th line. Leave out word "photo".

Page 3-126, third paragraph, 4th line. Should be "has", not "have".

Page 3-128, second paragraph, last sentence. It appears that this is not part of the proposed action and should not be mentioned as being an impact of the proposed action.

Page 3-131, third paragraph. How is the spray project described in Chapter 1? Has to be analyzed as to how it is described in Chapter 1.

Fourth paragraph. There is no mention in Chapter 1 of controlling livestock distribution by water control. What type of adverse impact? What is the impact? Why would it occur? How do you know? What wildlife populations would be lowered? What species and how much?

Page 3-133, Table 3-4. What are the changes in conditions? Changes in habitat is effect. The impact is on populations. Quantify changes in conditions - fair-to-poor, good-to-fair, number of acres, number of miles, etc. See Challis statement for example.

Wild Horses

Page 3-134. The statement that "if horses were not in the area they did not fall under the purview of the Act and are legally not wild horses" is questionable as to if this is a correct statement. Material on land management areas appears to be immaterial. The impact is on horses, not management areas. The table at the bottom of the page requires a table number and title.

Page 3-136, Table 3-5. Third column, second item. This is not part of the proposal on the analysis of this ES and should be deleted. Fifth item - how does this relate to the proposed action? Is it a cause stemming from the proposed action.

Page 3-138, third column, third item. Should be deleted. Not part of the proposal.

Page 3-141, third line. It is doubtful the removal of the horses will be part of the grazing system proposal. It may be part of a wild horse management plan and analysis of impacts and development of the proposal is based on the assumption that the horses would be removed. However, it is doubtful that the grazing

system calls for the removal. Do you mean that most of the water is privately controlled on NRL? This statement needs to be clarified.

Page 3-142, first full paragraph, second line. How, why, how do you know it will adversely affect? There is no description in Chapter 1 of gates being open at such and such dates. If it is not described in Chapter 1, it cannot be analyzed as if they would be open.

Page 3-143, second paragraph. Where, in Chapter 1, is it described that gates would be open? If drift is blocked during years of late snows, what is the impact?

Page 3-145, first partial paragraph, top of page. Delete mention of allocation.

First full paragraph. What is the impact of eliminating north-south movement and cutting the herd in two.

Visual Resources

Page 3-147, second paragraph. "Impacts were based on short-term effects . . . " Why? In the very next paragraph, the seventh factor explains that very few projects can expect to meet the VRM objectives immediately upon completion. This is a serious contradiction which affects the visual classes of the whole study area.

Page 3-148. This is not Table 7. It should be Table 3-6 and should have at least the VRM classes put in Chapter 2.

Page 3-150, first paragraph. The BLM Manual number is 6320, not 6230 as described here.

Page 3-151. The VRM classes should not be put here without providing any criteria for the rating. Omit this and refer to the appendix.

Page 3-152, third paragraph. Table 3-6's title is "Visual Impacts . . ." and not "Adverse Impacts . . .".

Page 3-153, first paragraph. This whole paragraph does not correspond with the bottom of 3-147, where it says that VRM impacts were determined by short-term effects of the project. In this page it states that short-term impacts will not be considered. Straighten this out. Where did the windmills come from? There were none specifically described in Chapter 1. There were no numbers indicating that windmills would be built.

Fourth paragraph. This paragraph infers that spring developments would create a more pleasing appearance by adding "texture and color" of more vegetation. However, this is not necessarily true since this increase in vegetation may not be harmonious with the surrounding area. This should be clarified.

Many times throughout this section, Chapter 4 Mitigation Measures are mentioned and discussed. Mitigation is not brought into analysis of impacts in Chapter 3 and all references to mitigation in this section have to be deleted.

This section did not relate impacts to cultural resources by fence and road building nor did it address secondary impacts which will be created by increased access for vandals.

A basic weak point in this preliminary draft environmental statement is the fact that only .13 percent of the lands in the study area were inventoried. The terribly inadequate inventory, mitigative nature of cultural resources inventory site selection, and a frequent mixing of cultural resource impacts with recreational impacts are stand-out items which can be improved by better description and, ultimately management decision.

Page 3-168, Table 3-8. The title is "Site-Specific Impacts", however, nothing on this table describes what the specific impact will be. It gives the allotment and type of sites but fails to describe the specific impacts.

Page 3-169, 9th line. How would it be impacted by construction? What is the specific impact?

Page 3-175, Table 3-10. Says "Summary of Potential Impact"; however, there are no impacts located on the table. What are these specific impacts?

Page 3-177, paleontological. Unlikely, insignificant impacts - delete.

Page 3-178. The proposal cannot have impacts on grazing systems. Grazing systems are the proposals. Delete.

Page 3-179. Delete. Insignificant, improbable, unlikely to occur.

Recreation Resources

Page 3-180. Impacts are non-specific. They need to be specific, quantified, identified and analyzed.

This section on Recreation Use fails to account for the impact of better access on the activities collecting and visiting of "ghost towns". 2-226 describes all collecting as being done in the general vicinity of good access, and the increased number of roads within the proposal will surely affect the amount of collecting in the area.

Page 3-181, Table 3-11. Why would these increases occur? How do you know? Where is the analysis? Support this. Any increases have to be based on possible increases in wildlife populations.

Page 3-182, second paragraph. The increased sightseeing opportunities described in this paragraph are not even mentioned in Chapter 2, the existing environment. Are there any of these opportunities at the present time?

Third paragraph. This paragraph is totally inaccurate. How can you say that recreationists generally do not favor fencing of undeveloped land when the study that is cited showed only 18 percent disliked the practice? This means that 82 percent either had no opinion or favored the practice.

Page 3-182, fourth paragraph. After the preceeding paragraph, this also looks shaky. There had better be some percentage of responses to these statements.

Page 3-183, second paragraph. The second sentence lends nothing to the discussion and should be deleted.

Last paragraph. Insignificant. Should be deleted.

Fourth paragraph. Are the proposed land treatments within significant recreation areas? This should be clarified.

Page 3-184. It does not seem that the impacts of fencing upon the recreation resources have been fully described. The access to hunting and fishing areas will be restricted. ORVs and snowmobiles will encounter obstacles. Cross-country skiers will be restricted whenever a fence is encountered. Without use figures for these activities, it is not possible to assess these impacts.

Livestock Grazing

Page 3-185. Which will be the use for the first 15 years - 98,878 or 98,646? Why the two numbers?

Third paragraph. Although current actual use is not known, the average licensed use should be used - not qualifications.

Fifth paragraph. Cannot assume objectives would be met. Base analysis on vegetative analysis of predicted production to determine what the possible AUMs may be at the end of 15 years. This has to be provided by the vegetation section.

Page 3-186, last paragraph. Some estimate or prediction should be made. Use an example, or worse case example, if nothing else.

Agriculture

Page 3-188. What is the impact on crop and hay production as a result of having to hold cattle on private lands longer in the spring or move them in earlier in the fall?

Page 3-189. There is no impact of the proposal on mineral resources. This section should be deleted.

Transportation Systems

Page 3-191. How did the proposal impact the existing system? The mere fact of adding to the system is not impact on the system unless it was to relieve use which was causing deterioration. This section should be deleted unless some definite impact on existing road systems can be established and analyzed.

Utility Systems

Page 3-193. There is no impact of the proposal on utility systems. This section should be deleted.

Socio Economics

Page 3-194. Section on population should be deleted as there is no impact.

Page 3-195, last paragraph. How was the approximately 450 MM arrived at? There was no basis for this in Chapter 1 as there should have been.

Page 3-196, Table 3-12. This information is shown in Chapter 1 and should not be repeated here.

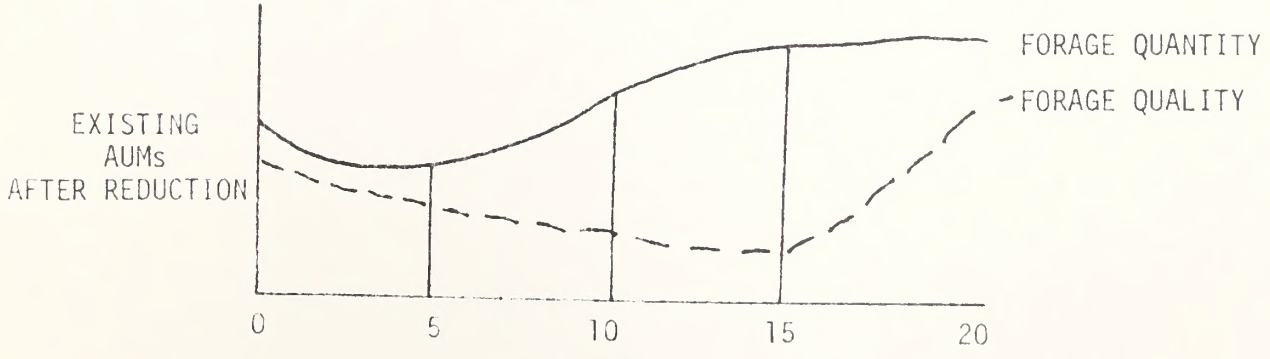
Page 3-197. The top of the page should have a table number and table title. How was the MM requirement derived?

Page 3-198, second paragraph. There should be no allowance of additional AUMs after implementation until toward the end of the 15-year period. For analysis purposes it should be based on the fact that no additional allocations would be made until after the end of the first 15-year period. Increased herd size is not presently established in the livestock grazing section. Until it is, the socio-economic section cannot utilize this as an impact. What is the basis for this increase of 5,587 head for the 15th year after proposal? How do you know? How was it derived?

Page 3-199, first partial paragraph. Why would it be 500,000 per year? How do you know? Summary of the analysis has to be in the text - not in the appendix.

Last paragraph. What is the basis for this increase? Additional AUM allocations are probably not likely to occur until the end of 15 years. Major changes in the proposal and additional allocations would require additional analysis - possibly an additional statement.

Page 3-201, 202. Implementation of the AMPs would result in a short-term increase in revenues from construction/AMP development. Construction labor income is purported to be the net impact, but the narrative indicates a range from $315 thousand to $395 thousand for construction labor income. With a payroll of this magnitude, what would be the income generation affect on local economies? How much of the recreation expenditures would stay in the communities? Does the increased recreation revenue offset long-term agricultural loss? The ES, as presently written does not answer any of these questions. If the proposed action includes forage increases under intensive management, the question is appropriate to ask if forage increases wouldn't result in a partial, or entire offset of the initial reductions in AUMs? If the AMPs have custodial management as the objective, then an explanation should be clearly made that describes the objectives of the grazing systems. The ES would be improved by graphically showing what the future forage production for all consumptive uses would be as follows:



The curve as described would array the production of forage; depicting the incremental change that is projected to occur through the proposed action in Chapter 1. Forage quality change, and production increases, will both affect livestock production, as well as the vigor and overall well-being of the other animals. The proposed action does not describe whether the objectives of the AMPs are to stabilize the ranching industry in this way.

Page 3-203. The figures in this table are impressive, but undocumented. A short explanation of their source (aside from the Interior Department) might be more illuminating.

Page 3-205. The narrative on Social Attitudes & Expectations indicates minimal, or non-contact with the ranching industry. The B/C Analysis ratios as reported by the Nevada State Office for all but four of the 14 AMPs in the Tonopah grazing ES show a positive ratio, or favorable return for the dollars of investment. (Note, the B/C ratios are not within the ES, but were provided via telephone.) Do the ranchers understand what the AMP implementation includes, e.g., BLM initial costs versus rancher maintenance of facilities, etc.? Documentation is needed as to rancher response to the proposed AMPs, their understanding of the future with an allotment management plan vs. without. Ranch maintenance costs may exceed initial development costs, as well as be beyond the rancher's capital or capability.

SUMMARY OF VEGETATION IMPACTS

Allotment & Vegetation Type	Area Lost To Construction	Future Forage Production 15 Years AUMs	Potential Range Site Production AUMs	Range Condition At End Of 15 Years								
				Cattle			Sheep			Etc.		
				Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
Allotment:												
Type A				Acres	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Type B												
Type C												
Type D												
Allotment:												
Total (where appropriate)												

From: Gifford, Hawkins, and Williams - 1975. Hydrologic Impacts of Livestock Grazing on National Resource Lands of the San Luis Valley. A report submitted to the USDI, BLM, Colorado State Office. 370 pp.

Table 36. Infiltration Rates for Grazed Lands Under Different Vegetative Conditions and Grazing Intensities.

Site Description	Range Condition (Intensity of Grazing) Excellent (light)	Good-Fair (medium)	Poor (heavy)	Symbol	Reference
Gravelly loams, Texas	9.5 9.5	5.8 4.3	2.8	+ +	Leithead (1959)
Silty clay over clay, South Dakota	2.8 0.3 1.3 4.7	1.8 0.3 0.7 5.1	1.8 0.3 0.6 4.9	0 0 0 0	Sharp, et al. (1964)
Loamy fine sand, Oklahome	10.7	3.5	2.2	0	Rhoades, et al. (1964)
Loams to clay loams, Southwestern Alberta Canada	2.5	2.0	1.7	0	Johnston (1962)
"Slick" and "semi-slick" soils, Montana	0.4 0.2 0.3 0.4		0.3 0.6 0.6 0.3	0 0 0 0	Branson, et al. (1962)
Sandy loam and loams, Colorado	1.8 1.0 1.8	2.0 0.9 2.2	1.1 1.0 1.2	-0- -0- -0-	Rauzi & Smith (1971)
Fine sand, Nebraska	4.8 4.8	3.6 2.7	0.9	-0- -0-	Rauzi, Fly, et al. (1968)
Silty clay loam (Loessial materials), Kansas	1.3	1.0	0.8	X	Knoll & Hopkins (1959)

All rates in inches per hour.

Since much of what follows Chapter 3 is based on the impacts developed in Chapter 3, a lack of an adequate or sufficient Chapter 3 prevents the development of adequate subsequent chapters.

In reviewing this chapter it isn't readily apparent that the criteria for developing mitigating measures were followed. Also, it doesn't appear that the measures were developed based on the specific impacts documented in Chapter 3. The criteria is that all measures have to be real and committed. Also, all measures have to be related to a specifically identified impact in Chapter 3. The text has to indicate the impact being mitigated. Each measure or group of similar measures has to be analyzed as to its effectiveness in reducing or eliminating the impact, and the results of that analysis shown. This analysis should include a survey on how well similar measures in like environments have worked in the past if there has been any experience with the measure, or some indication of the probability of the measure working successfully. If the measure involves a change in the design of the proposal, such as additional fencing, which would eliminate AUMs causing a change to have to be made in the grazing system, or if the measure itself causes impacts, and if major; these measures cannot be considered in Chapter 4 but have to be considered as alternatives. Where impacts do occur as a result of the measure, they have to be discussed as part of the analysis of the measure and included in Chapter 5 if adverse. Many of the measures discussed here in this Chapter apparently would have impacts of themselves. Sufficient information is not provided to determine if these impacts would be major or not but in some cases it appears they may be; therefore, these measures would have to be considered in the Alternatives chapter.

The impact or impacts being mitigated should be added to each listed measure. For example: Measure 1 on Page 4-3, the impact or impacts that this measure is mitigating should be added to the end of this measure.

The analysis of effectiveness has to be shown - not just the results of this analysis as is done in the Summary Tables. Summary Tables only provide the results of the analysis. How or why would the measure work has to be explained and identified. The analysis also has to include any impacts the measure itself would create.

It is questionable that all of these measures have been bought off on by the DM and/or State Director. Many of them would have impacts in of themselves and would be quite expensive. For example: Measure 2 - fencing all critical and threatened plant locations - and No. 15 - watering construction areas, service roads, and compacted livestock areas to minimize wind erosion and dust. This impact is so insignificant to begin with, that it hardly appears to warrant a mitigating measure which could have serious cost implications. It is essential that all measures located in this Chapter have really been committed to by the decision maker and that he has realized what he is commiting the Bureau to.

The measures are not quantified as to acres, AUMs, etc., in order to determine if they are changing the design of the proposal. For example: Measure 1 does identify the miles of fence and the amount of acres; however, it does not identify the AUMs involved in these thousand acres. Measure 6 does not

indicate the number of miles of fence required, the acres involved, or the AUMs. The impact of the measures appears to have been overlooked. Each measure requiring fencing will have impact of itself. For example: Measure 8 - fencing along a state route would certainly appear to have impact on visual resources. It could also possibly have impact on wildlife and wild horse migrations. However, there is no mention of these potential impacts.

Quantification of the effectiveness is also lacking. Unless the amount is quantified as is required in Chapter 3, it will not be possible to track through into Chapter 5 to determine the quantified unavoidable adverse impacts. For example: Table 4-2, reduction due to mitigation is 30% reduction in sediment yields. However, this amount should be quantified. How much is 30%? One ton, a thousand tons, a million tons?

The entire chapter is apparently uncoordinated and thrown together haphazardly, eg: Numbers are missing, on page 4-6, what happened to Number 18? Measures are not applicable to the stated impact. For example - Table 4-2, Impact 2, Measure 16 - says nothing about a Soil Scientist's assistance. Impact 3, Measure 17 is discussing design of reservoirs and has nothing to do with the stated impact. And, finally, impacts are stated under the wrong title in the summary tables. For example - Table 4-2, Impact 1 is a vegetation impact, not a soil-water resource impact; and Table 4-10, page 4-22, Impact 6 is not a recreation resource impact. For cross-referencing purposes on the summary tables, you should show the page number or numbers where the impact is located in Chapter 3 for each listed impact. It also appears that in some cases the mitigating measure numbers were listed on the summary table with little thought being given to if it really mitigates the listed impact. For example - Table 4-4, Impact 4 deals with herbicide spraying killing threatened plant species. However, the identified mitigating measure does not prohibit spraying, so how does it mitigate this impact?

Greater concerns should be placed on mitigating the impacts on soils. Roads should be constructed under strict control to limit the degree of disturbance and subsequent erosion. Sloppy construction work could result in sever- erosion problems. Page 5-3 talks of construction criteria, are they the same as those described in the first part of Chapter 4?

We couldn't find mention in this chapter that intensive cultural resource survey would precede spring development or other related grazing developments. Neither did the preliminary draft Environmental Statement state that known or newly discovered cultural resources would be avoided where possible or salvaged prior to construction of improvements.

Specific

Page 4-2. These monitoring programs are to be described in detail in the last section of this chapter and should not be mentioned at this point-end of Side 2,

Second, third and fourth paragraphs should be deleted. There is no need to discuss impacts that cannot be mitigated. There is also no need to re-emphasize the impacts in this Chapter. If the impacts cannot be mitigated then they will show up in Chapter 5 as unavoidable adverse impacts and their significance will be discussed at that point.

Page 4-3, No. 1. According to page 1-51, second paragraph, all spring improvements being developed by the proposal, would include fencing to prevent trampling and overgrazing of the wet meadow areas. So therefore it would appear that this measure is already a part of the design of the proposal and should be deleted. In addition, the 250-300 miles of fence could have impact on grazing visual resources, wild horses, and wildlife. Where are these impacts analyzed and considered? Would removal of 1,000 acres from grazing remove a critical number of AUMs from any one pasture which would result in a change in the design of the system?

No. 2 - It is difficult to believe this is a committed measure to fence all critical, threatened or endangered plant locations within four and a half million acres. What are considered to be "critical" endangered/threatened plant locations? There has to be some estimate of the number of miles and acres that this would involve to be able to analyze the potential impact of this fencing. This fencing could have major impact in removing areas from grazing, visual resources, wildlife, and wild horses, far in addition to what the proposal may have.

No. 3 - Allocation of forage increases cannot be mitigation. As a result of the proposal, forage will increase and the impact of this increase or possible increase in wildlife numbers should have been analyzed in Chapter 3. The problem was that the Vegetation Section did not predict and quantify increases for the Wildlife Section to be able to consider. In any case, additional allocations cannot be considered as mitigation measures.

Measure 4 - What has this to do with the impact of the proposal? This might be a measure included in a statement of the Wild Horse Management Plan but it would not appear to be appropriate for inclusion in this statement which is analyzing the impact of implementing the grazing management program. This would also appear to change the design of pastures and design of the proposed action and, in any case, cannot be considered as a mitigating measure.

No. 5 - How many miles of fence would this involve and how much acreage? How would this impact recreational use, visual resources, and livestock grazing?

Page 4-4

No. 6 - How many miles of fencing would be involved? How many acres removed? How many AUMs and what would be the impact on other resources?

No. 7 - This is a definite change in design of the proposal and cannot be considered in this Chapter as a mitigating measure. Design changes have to be considered as alternatives and an alternative developed to consider it.

No. 8 - How many miles of fence, acres involved - AUMs removed - and impacts on other resources?

No. 9 - How many miles of fence would be involved - how many acres removed - what would be the impact on other resources? Also, how many additional miles of pipeline would be required to pipe outside the exclosures.

No. 10 - These specific sites and cultural resources should be identified. Also, it appears that this mitigating measure is attempting to carry out other

program objectives and we cannot use grazing to carry out other program objectives unless it is related to achieving the objective through the use of grazing as a tool. What would be the acres in AUMs and miles of fence involved in this measure?

No. 11 - Wouldn't this already be included in the design of the proposal which says that springs to be developed by the program would be fenced?

No. 12 - What impact of the proposal is this mitigating? If it is mitigating the specific impact of the proposal, what are the numbers, size, acres, AUMs, and impacts on other resources. This could involve a considerable amount of fence exclosures scattered throughout the landscape which could have serious impact on other resources.

No. 13 - Some criteria should be established to identify what is meant by highly significant. Can these sites be specified now? Some measures should be inserted to indicate compliance with the 106 procedures.

No. 14 - What specifically is involved in this measure? What is meant by cultural resources would be maintained in their present physical state? Is this all cultural resources? How would they be maintained? This could possibly involve cessation of implementing the proposal and removal of all grazing if taken literally.

No. 15 - What does this measure involve in the terms of resources required? It seems to be an extreme measure to mitigate an insignificant impact.

No. 16 - Waterbars would be designed on what? What roads are being constructed by the proposal? No description of road construction in Chapter 1.

No. 17 - What impact does this measure mitigate? There are no reservoirs and pits proposed in the proposed action so therefore, how can a measure on design of reservoirs and pits be applicable.

Page 4-6

What happened to Measure 18? It is missing.

No. 19 - This is already part of the design of the proposal and indicated on page 1-53, Item 6. Therefore, it is not a mitigating measure.

No. 20 - Which fences would be located far enough from aquatic habitat? They should be specified. Number of miles involved should be specified. What is meant by "suitable buffer strips?" Define. How many feet? How many acres will be involved? How many AUMs?

No. 21 - Define what is meant by "cleared and sufficient expertise". This should be specific.

No. 22 - There are no access routes proposed for construction in the proposal, so how can there be a mitigating measure involving access routes. Again, it would appear that we are trying to utilize the livestock program to achieve objectives for other programs which, under current range policy, should not be part of the livestock program, unless it can be achieved through use of grazing as a tool.

No. 24 - Is this every fence to be constructed in the area - all 929 miles of fences? What about the fences being proposed in the mitigating measures? Will this include them also? How many total miles will be involved? What will be the impact on visual resources of this flagging? How will the flagging be removed after the first six months? What manpower would this involve and what impact on vegetation from driving over and around and by the fences to flag them?

No. 25 - How many miles would this involve? Would this have any impact on livestock grazing?

No. 25 - Suitable areas should be defined as to what is meant.

No. 26 - Define what is meant by "barriers." What type of barriers? Identify where they would be located, and what would be involved.

No. 28 - How many cattle guards would be eliminated from the proposal? Would gates be used or would no access point be allowed at all? What would be the impact on recreational use of having additional gates to have to open?

No. 29 - Is this measure really related to an impact of the proposal? As commented on in Chapter 3, this does not appear to be an impact created by implementing the Bureau's proposed action.

No. 30 - It is doubtful that this measure is mitigating an impact that is really related to implementing the grazing management program as was commented on in Chapter 3.

No. 31 - What is meant by substitute the water lot? What is a water lot? What is meant by substitute? What does this measure involve - fencing, numbers, acres?

No. 32 - Since this measure is dealing with existing - it is not an appropriate mitigating measure as it does not relate to an impact being created by implementing the proposed action. How will water be provided at proposed wells and pipelines for wild horses. Isn't this already included in the design of the proposal?

No. 36 - If no allotment boundary fence will be built, how will this effect implementing the proposal? Is this a design change of the proposal?

No. 37 - What is a "gap fence?" Will this interfere with implementing the proposal and is it a design change within the proposal?

No. 38 - How would use be prevented? This has to be specified. What impacts will preventing use have on other resources such as recreational use?

No. 40 - This measure does not seem to be needed as stated on Page 1-46. It says "where fences cross existing roads, either gates or cattle guards would be installed." There is no indication that a fence would be built across a road without providing a gate or cattleguard.

No. 42 - Seriously doubt this measure applies to any impact of implementing the proposed action. Unless there is a MFP decision that grazing would take

precedence over agricultural entry, then the proposal would not have any impact on potential agricultural entry. It would appear to have the same status as mining - that mining takes precedence over grazing and therefore grazing would have no impact on mining and would have no impact on potential agricultural entry.

No. 44 - What is a "wide-enough" buffer zone? How wide? How many acres would be involved? There is no indication in the proposal that seedings will be sprayed. Acres will be sprayed and seeded so the wording of this measure is unclear. What happened to Measure No. 45?

No. 46 - Hand revegetation of what? On all land treatments? Need to be more specific as to what is involved in this mitigating measure.

No. 47 - This should be part of the design of proposal. The proposal currently states helicopters or fixed-wing aircraft. The comment was made in Chapter 1 that one or the other had to be specified. When this is specified this measure may not be necessary. One or the other has to be specified in order to analyze impacts to develop an adverse impact to mitigate.

No. 50 - This should be deleted. We do not have to say that an impact will not be mitigated and this is not a mitigating measure.

Page 4-12, Table 4-1. Impacts are insignificant as indicated in Chapter 3 comments and should be deleted, as well as these measures. In addition, how much is 60-70%?

Quantification is required.

Page 4-13, Table 4-2. As indicated in the comments in Chapter 3, these topics have to be split. Impact 1 is a vegetation impact, not a soil and watershed impact. The reductions due to mitigation have to be quantified. This doesn't seem related to the impact. The impact is loss of vegetation and the reduction is dealing with sediment yield.

Impact 2 - This impact is quoted as being minor on Page 3-15 and wouldn't seem to warrant any mitigating measure. Measure 16 says nothing about a Soil Scientist assistance as indicated in the reduction due to mitigation.

Impact 3 - Soils says 10% decrease - Water says none. In either case impact is negligible. What has Measure 17, based on design of reservoirs, to do with this impact.

Page 4-14, Table 4-3.

Impact 1 - Reduction due to Mitigation. The impact was not quantified in Chapter 3. What is 90%? Ninety percent of what?

Impacts 2-3-4 - Unable to find specific mention of these impacts in Vegetation Section of Chapter 3. Reduction due to mitigation for Impact 3 - how do you know this would occur?

Impact 5 - This is not an impact - it is an effect.

Page 4-15, Table 4-4.

Impact 1 - How does mitigating Measure 1 mitigate impact of this? Mitigating Measure 1 allows grazing. How does Measure 43 mitigate the impact? Measure 43 occurs after the plants have already been removed by the land treatments. Impact 4 - How does Measure 21 mitigate this impact? Measure 21 does not eliminate spraying so how does it mitigate loss from spraying?

Page 4-16, Table 4-5.

Impact 1 - Is not an impact of the proposal. As indicated, in Chapter 3, it has to be deleted.

Impacts 2-3-4 - There was no apparent specific mention found of these impacts in Chapter 3.

COMMENT: It is noted that no mitigating measures are proposed for bighorn sheep on P. 4-16.. Why?? The unmitigated impacts are discussed on Page 5-6.

Page 4-17, Table 4-6.

Impact 1 - This impact is not related to the proposal according to Page 3-36, second paragraph. Measure 1 says nothing about the lake.

Impact 3 - There is no specific mention of this impact in Chapter 3. Measures 5 and 9 do not deal with streams. Measure 11 deals with Cultural Resource sites so how can these measures mitigate this impact?

Page 4-18, Table 4-7.

Impact 2 - This is not an impact. This is an effect.

Impact 1 - How would Measure 26 keep horses from running into fences? Measure 26 is construction of fences with wood and steel posts. The fence would still be there.

Impact 4 - This impact is not quantified in Chapter 3. Also, is this below the 520 head to be managed? Or has the analyst become confused with impact on existing numbers rather than utilizing the assumption that numbers would be reduced to 520 and that the impact of the proposal is to be analyzed only on the 520 head to be managed?

Page 4-23, Table 4-11.

Impact 1 - How is this an impact on the proposal. There was no specific mention of this in Chapter 3.

Page 4-19, Table 4-8.

Impact 1 - The impact is on visual resources from fences, etc. However, Measure 10 adds more fences so how can it mitigate? Measure 19 retains water so how does it mitigate visual impact? How does Measure 20 mitigate visual impact?

Impact 2 - Again deals with fences. Measure 10 adds fences so how can it mitigate impacts?

Impact 3 - Measure 43 adds fences so how can it mitigate? How can Measure 47 which deals with type of plane to be used mitigate impact on visual resources?

Page 4-20, Table 4-9.

Impact 1 - Deals with physical alteration of cultural resource sites; however, Measure 1 adds fences which could disturb additional cultural resource sites so how does it mitigate the impact?

Impact 2 - Deals with vandalism, etc. Measure 2 deals with fencing threatened plants so how does it mitigate the impact? Measure 5 deals with fencing a lake so how does it mitigate impact on cultural resources? Measure 6 deals with creek fencing. How can it mitigate impact on cultural resources?

Page 4-21, Table 4-10

Impacts 1, 2, 4, 5 - Were not specifically mentioned in Chapter 3.

Impact 1 - How does Measure 10 which deals with fencing mitigate this impact? Measure 14 deals with cultural resources. How does it mitigate this impact? Measures 36 and 37 deals with no fencing. How does it mitigate impact of spring development and pipeline development? Measure 39 deals with a specialist. How does it mitigate the impact of these two developments.

Impact 2 - How do Measures 10, 14, 37, and 39 mitigate the impact?

Impact 5 - This is an impact of recreational use rather than of the proposal on recreation use. The statement does not analyze the impact of recreational use. None of the measures listed would mitigate this impact, even if it was a correct impact.

Impact 6 - This impact has nothing to do with recreation. It is also an impact that would probably not occur and should be deleted.

Impact 7 - This impact is not specifically identified in Chapter 3.

Page 4-24 - Monitoring Programs

As presently written, this section of Chapter 4 does not fulfill the intent of this section. This section should identify monitoring and research programs to be implemented. Identify who would be responsible for conducting the program and be as specific as possible in describing the program. Should also indicate that these programs are not used in determining residual adverse impacts. This section does not describe how the monitoring and study programs will be conducted, who will be responsible for them, what, how, when, and where they will be accomplished. Much of this additional detail needs to be added to make this section complete and fully describe the monitoring and study procedures. This section makes no mention of studies that would evaluate the effects of the grazing systems. Chapter 1 (Page I-12) mentions that such studies concerned with the effects of grazing on vegetation should be described here.

Page 4-26

How does this describe the monitoring programs to be undertaken? This section

section should be related strictly to describing these specific programs.

Page 4-28. This is not the mitigating section - only the monitoring and study program procedures should be described - not mitigation.

CHAPTER 5

Chapters 3, 4, and 5 are like building blocks. Each chapter following Chapter 3 cannot be adequate if the preceding chapter is inadequate for any reason. That is the case with Chapter 5. Chapters 3 and 4 were found to be lacking in content and in quantification; therefore, Chapter 5 cannot be reviewed in detail at this time. One must keep in mind in developing this chapter the purpose of it. This chapter is to show all of the unavoidable adverse impacts that would result from implementing the proposal. These impacts may be residual impacts, after application of mitigating measures or they may be adverse impacts which could not be mitigated. It is essential that all of the adverse unavoidable impacts be quantified. This has to be more than merely a summary of unavoidable adverse impacts; the relative values placed on the impacts and significance must be analyzed. This chapter must also deal with adverse impacts which could result from failure of design features or design features not working, as well as adverse impacts resulting from implementation of mitigation measures. The chapter does not analyze how the impact was determined and any analysis of this type would be removed. Chapter 5 is essentially a regrouping in summary fashion only of the impacts that are unavoidable after the plan of action, including any planned mitigation, is carried out and reports only the unavoidable adverse impacts. All other discussion is irrelevant and should be deleted. The discussion also must focus on the aggregate impact of the proposal - not on parts of the action. Qualitative and quantitative degree of significance is insufficiently presented, leading up to any conclusions. The discussion still leaves unanswered the basic question - how significant is the impact? Even after all of the discussion on wildife, it remains unclear whether the impacts on big game which are unavoidable, amount to any significant impacts on the population levels in the Tonopah Unit. The statement of unavoidable adverse impacts has to be approached in an analytical fashion and has to state more than the effect. It has to examine the impacts and their implications for the resource being evaluated.

Page 5-15: See the discussion of 3-184. Paragraph 2. The phase should be "natural landscapes", not "national landscapes".

CHAPTERS 6 AND 7

It stands to reason that without development of adequate and sufficient previous chapters that these chapters cannot be developed and reviewed at this time. The guidelines for preparing these chapters should be reviewed again as contained in 1792 and Appendix 4 to 1792. Discussion of short-term, long-term cannot be done in subjective terms. Wherever possible, quantification has to be utilized in describing the trade-offs and the long-term short-term impacts, especially the cumulative impacts. When through reading Chapter 6, the reader should have a good idea of the long-range perspective of the possible effect of the project on overall environmental productivity and what the long-range consequences would be of implementing the proposed action. He should also have a good idea of the trade-offs being made to accomplish the proposed action and in a quantified manner.

CHAPTER 6

In Chapter 3 the PDES projected a "minor improvement in regional water quality". This is questionable, as reflected earlier in these comments. However, if this is the position taken by the PDES author(s), it should be applied in a consistent fashion. For example, on Page 6-4, it is stated that on a regional basis, water quality is expected to improve in the long-run. By dropping the modifier "minor", the PDES rather insidiously, and perhaps unintentionally, has upgraded the relative significance of the so-called regional water quality improvement. In fact, the PDES has not presented any data since Chapter 3 in this regard which would prove that the improvement is anything other than the originally stated magnitude, that is, minor.

Page 6-8, Paragraph 2. These impacts are visual impacts, but are included in the recreation section. They should be labeled as visual impacts.

Page 7-2: Paragraph 2. How much of an impact (i.e, 25% reduction, or loss) would the ranchers (i.e, livestock industry) incur in the short run? Methodology exists to measure net losses due to livestock use adjustments. If the long run gains exceed short run losses is there a direct offset and/or mitigation of the ranchers loss, or once a dollar of revenue is lost does it remain lost?

Graphically, the net short term reduction may appear as follows:

Existing cattle w/o reduction		Future (yrs) w/o reduction (50%)		Future (yrs) w/reduction (25% reduction)
500 cows	or	250 cows	or	375 cows
500 "		" "		500 " (20% increase - 15 yrs.)

The net affect would be determined by measuring the difference between what the existing cattle numbers are less the future without any reduction (assuming condition and trend would impose reductions thru loss of forage), and the difference between the reduced herd size with the reduction and the future increase resulting in time from the reduced herd.

With the proposed action would the initial reduction of 25% ever be recaptured? If not, the methodology for determining the net effects from livestock losses may be computed as follows:

$$\left(\begin{matrix}\text{Existing}\\ \text{Herd Size}\end{matrix}\right)\left(\begin{matrix}\text{A.U.}\\ \text{Value}\\ \$\end{matrix}\right)\left(\begin{matrix}\text{Present}\\ \text{Value}\\ \text{Factor}\\ (15\text{ yrs.})\end{matrix}\right) - \left(\begin{matrix}\text{Future Herd}\\ \text{Size W/O}\\ \text{Reduction}\end{matrix}\right)\left(\begin{matrix}\text{A.U.}\\ \text{Value}\\ \$\end{matrix}\right)\left(\begin{matrix}\text{Present}\\ \text{Value}\\ \text{Factor}\end{matrix}\right) = A$$

$$\left(\begin{matrix}\text{Herd Size}\\ \text{w/reduction}\\ (25\%\text{ less}\\ \text{than existing})\end{matrix}\right)\left(\begin{matrix}\text{A.U.}\\ \text{Value}\\ \$\end{matrix}\right)\left(\begin{matrix}\text{P.V.}\\ \text{Factor}\end{matrix}\right) + \left(\begin{matrix}\text{Future Net}\\ \text{Herd Size}\\ \text{w/reduction}\end{matrix}\right)\left(\begin{matrix}\text{A.U.}\\ \text{Value}\end{matrix}\right)\left(\begin{matrix}\text{Present}\\ \text{Value}\\ \text{Factor}\end{matrix}\right) = B$$

A - B = Net Effect of Livestock Reductions & Losses.

But the AMP's are designed to increase from the present, as well as to avoid a future loss (w/o AMP). This doesn't come across in the FS. A graphic display would improve readability.

CHAPTER 8

As presently written this Chapter is inadequate to meet the requirements as stated in 1792 and falls short of meeting the NEPA mandate of complete analysis of all alternatives to the proposed action. Additional alternatives should be developed. These would deal with further incorporation of those mitigating measures that do not meet the criteria for mitigating measures. It should also deal with other groupings of allotments and other levels of development. The results of the benefit cost analysis would indicate that there should be other logical groupings for allotments to be considered. For example, there are four allotments with a B/C ratio of less than one-to-one. Two of these are considered sub-marginal - less than .5 to one. There are also only six allotments which fall in the range of one-to-one to two-to-one. Additional thought needs to be given to development of other alternatives. The alternative of elimination of grazing should be considered in detail to provide a basis for comparison of impacts with grazing vs. non-grazing. In addition to other alternatives requiring considerations, the two that are considered are inadequately considered.

Description - Each alternative must be structured to clearly identify the description of the alternative. The description must be complete within itself - the alternative has to be described specifically. Use levels have to be defined and specified. Improvements have to be defined, identified and quantified specifically. The types of management system(s) have to be defined and explicitly detailed. They have to be specifically identified and described. The description of the alternative has to be insufficient detail, on the same level as the proposal in order to be able to analyze impacts of the alternative.

Analysis - Each alternative has to be fully analyzed and documented. The analysis has to be approached in the same manner as for Chapter 3 and has to answer the same questions. Comments made on Chapter 3 are just as applicable to Chapter 8 and should be considered and utilized in preparing Chapter 8. Do not compare the impact of the alternative with the proposal. For example, the anticipated improvement is assumed to be less than that of the proposed action. Cannot assume impacts would occur. Impact conclusions have to be supported by analysis. Impacts have to be quantified in the same manner as those in Chapter 3 in order for comparisons to be drawn between the alternatives and the proposed action. The analysis has to be complete within itself. However, remembering that the thrust of the analysis should be to identify, describe, and analyze the significant major impacts.

Specific

Page 8-4: Third paragraph. States impacts would be the same as noted in Chapter 2. There are no impacts located in Chapter 2. Chapter 2 - Future - only describes what the environment would be at the end of 15 years. It does not analyze impacts.

Fourth paragraph. Middle of the paragraph - it cannot be assumed that impacts would occur and also comparisons to the proposed actions should not be made.

Page 8-7: Last paragraph. How do you know these results? There should be some rationale and analysis to substantiate these conclusions. Also these should be quantified by allotment.

Page 8-12: Should not refer to implementation of the Nevada Range Policy and MFP. What is being analyzed is implementation of the alternative which is continuation of existing management.

Page 8-16: Third paragraph. Should not compare with other alternatives or proposed action. Less road maintenance then what is a comparison. The impacts of the alternative have to be analyzed in themselves. In other words, what is the impact of this alternative? No comparisons to other alternatives or proposal.

Page 8-20 A: Fail to see how this is a minimal investment alternative. The only difference is fences with a reduced cost by only 1.9 million to a level of 2.3 million. This is still a very high level of development. Other management alternatives are available and should be analyzed.

First paragraph. The alternative has to be described specifically here and the fencing has to be defined and quantified.

Third paragraph. The forage use levels of this alternative have to be specifically identified and documented.

Item 2: Fourth paragraph. Are you saying the other AMPs will not be implemented? If so, then the statement in the first paragraph is incorrect.

Page 8-20B: Note: Two pages are numbered 20. Herding of cattle has not been proven. The alternative has to analyze the effectiveness of this working and the impacts of it not working.

Item 5: Third paragraph. The specific improvements have to be identified and quantified.

Item 6: Fourth paragraph. This contradicts with the statement on Page 8-20, first paragraph - that grazing would occur in much the same way as described under the proposed action. The proposed action makes no allowance for removal of livestock from the range for two months.

Page 2-23: Under the alternative "minimal investment to achieve basic management objectives", the PDES concludes that water quality would be expected to show marked improvement insofar as turbidity is concerned. Yet Chapter 3 tells us regional water quality would improve only a minor degree under the proposed action. The sudden emphasis upon a turbidity decrease is unsupported by earlier assessment of the study areas hydrology. It is very doubtful whether the Bureau could substantiate a claim like this. With no systematic turbidity surveys under present conditions and no functional relationships relating runoff changes to the character of total suspended soils in water, that is, turbidity. Again, the fact that this environmental statement has failed at developing the methodological framework for assessing the hydrologic

parameter changes brought on by change in grazing systems places severe limitations upon the validity of projecting change levels in water quality constituents.

Vegetation -- This alternative is not sufficiently analyzed. Impacts should be quantified in the same terms as the proposed action so comparison can be made.

Page 8-25: Second full paragraph. We cannot assume something would be done. It has to be described. Also have to analyze possibility and impact from lack of success.

Page 8-30: Second paragraph, fifth line. The word kill deer should be kill-deer. (one word)

COMMENT: The alternatives are very limited. So far as can be determined the same amount of fencing of stream bottoms, wet meadows, etc. would be fenced in the proposed action as in the second alternative (approx. 300 miles). Too few options are provided for the decision makers with so few alternatives.

Socio-Economic

Page 8-17 thru 20 and 38 thru 41: (Paragraphs covered: Livestock grazing, social-economics & social attitudes.) The "no action" and "minimal investment" alternatives are not sufficiently developed to critically evaluate whether they are viable alternatives. Conceivably, the minimal investment alternative may be the most "palatable" to the ranchers and acceptable to all of the public or interest groups if land (i.e., range) management objectives of optimum levels are met for livestock, wild horses, and big game (wildlife) forage utilization. But, lack of data in Chapter 8 precludes drawing this conclusion.

This chapter could be improved by a listing and analysis of net effects of income distribution, income generated per economic sector, net employment and other benefits and costs for the proposed alternatives. The section refers to Net Rancher Income and other income effects, but sufficient detail (quantification) is not provided in the ES, or Appendix L to evaluate the changes, or impacts on other resource outputs and resource utilization under the proposed action vs. the alternatives of NO action; and minimal investment, respectively. Without this data, the question of the basis for tradeoffs is raised.

APPENDICES

In developing appendix material it is necessary to keep in mind the criteria to be used in determining whether to place material in the appendix or not. The purpose of the appendix is to offer explanations and elaborations - not essential in the text, but which would be helpful to specialists seeking further clarification in the analysis of impacts. The appendix, above all, should not be a place for unnecessary and miscellaneous items the author was unable to work into the text. In addition, if items are readily available, they should be cited and not included in the appendix. If they can be made available upon request and is information that does not necessarily add to understanding of impacts, then they should not be included in the appendices. You need to apply the criteria of information that you need to know vs. nice to know. The appendix material presently includes much material that is nice to know but is not needed and should be deleted.

Specific

Page B-3: Table A-1. What does the P1, P2, P3, PW1, PW2, etc., refer to? There is no footnote explaining what this column is. What is meant by the AUMs available column? Is this current productivity? This needs to be defined and explained. What is meant by the AUMs use column? Is this total for all animals or just for livestock. This needs to be explained on the table.

Page B-2: Figure B-1 should be shown in the text.

Table B-1: Why and how does this add to the understanding of impacts? Is this data available in Weather Bureau publications and can it be cited? This should be deleted. How do Tables B-2 through B-11 add to understanding of impacts. This material is evidently all available elsewhere in other publications so the reference to this should be cited and this material deleted from the appendix.

Appendix C: All the data in this appendix should be deleted. Air quality impacts are insignificant and this adds nothing to understanding impacts.

Page D-2: Table D-1. Summarizes the mapping units which are at best very broad and general. Since it is impossible to conduct a better soil survey on the area it will be necessary to better describe the mapping units used.

Soils -- To say that there are 30 to 40 percent inclusions in a mapping unit is a bit excessive. This indicates that the soils were not well mapped, even at the reconnaissance level. Inclusions should not be more than 15 to 20 percent for any one mapping unit.

Page D-23: Table D-2. Too much information is repeated on this table as is found in Table D-1. A listing of the great group names should be sufficient to identify the soil within the mapping unit. It is not necessary to list the slope and gravel percentage again. The water erosion column is not necessary. This information should be covered in a separate table, such as Table D-4, but

much more detailed. An example is enclosed. Table D-3 should be combined with Table D-4 as shown in the example.

Page D-38: Table D-3. Column labeled "Soil Map Units and Association" should use the Association name. This table should be condensed and shown in the text.

Page D-42: Table D-4. Column is labeled "Present and Future", however there is only one figure listed. Where is the "Future?" How was it computed? How was "Present" computed? Need to know total by allotment. Place the table showing total by allotment in the text.

Are we to assume that absolutely no difference in erosion will occur by changing the grazing management? According to the PSIAC method, for determining erosion, found in BLM Manual 7317, Appendix 2, indicates that changes in cover will also change sediment yield. This method was used for calculating sediment yield, so should change with cover.

Page D-44: Table D-5. Is not necessary. Simply describe the procedure used and site the reference. An example may be used, but not as lengthy as Table D-5. It adds little to the DLS.

Page D-47: Potential productivity for each soil is given in Table D-6. There should also be a table to show the present production, as well as short-and long-term production with implementation of the proposed management system. Each pasture should be rated according to the number of acres of each soil and the rotation planned for that pasture. This method should also be used for estimating sediment yield also.

As indicated in the comments on the Vegetation Section, in Chapters 2 and 3, the ES needs data by allotment shown in the text and pasture data should be made available upon request and also should be converted to AUMs.

Page D-49: Soil terms and definitions. These definitions are a bit too lengthy. Each description should be kept as brief as possible to give the reader an idea of what is meant by the term. References can be used for further clarification.

Page D-54: What is the purpose of this information? How does it add to the understanding of impacts? It doesn't appear that it has a real need to be included in the appendix and should be deleted.

The list of the formative elements is only useful if the reader is familiar with soil taxonomy and can reconstruct the great group name. If this table is used then a brief narrative should be written to describe the priorities in which the formative elements were used in deriving the name.

Page E-2: Table E-1. How was this data used? There appears to be no apparent need or use. It should be deleted.

Page E-3: Maps should be in the Text or in a separate map appendix - not buried in other appendix material.

Page F-2: Table F-1. This species table should be deleted and made available upon request. Do not place laundry lists in the appendix.

Page G-2: Table G-1. Tables G-1 through G-3 should be deleted from the appendix and made available upon request. There should be a simple table made to show the correlation of species with habitats and placed in the text. See comments on Chapter 2.

Page G-16: Lincoln's sparrow should be Melospiza lincolnii. Also, there is no key in this appendix for the identification of abundance or occurrence letters (F,C,R,I,V, etc.)

Page G-20: Table G-4. This needs to be converted to a map and table correlated to allotments.

Page J-1: Appendix J. This material should be deleted as there is no need of this data. There is no impact on minerals.

Page L-2: Table L-1. This should be deleted. There is no impact on school enrollment and this data is available elsewhere and could be cited.

Page L-3: Table L-2. This isn't socio/economic data. The data is already available in the text. This should be deleted in the appendix.

Page L-9: Table L-8. Top part of the table is not socio-economic data and should be deleted. The bottom part of the table should be available in the text as suggested in the comments on Chapter 1.

Page L-10: Table L-9. This should be deleted and this information should be in the text for the no-action alternative.

Suggested Chapter 1 Format

CHAPTER 1

DESCRIPTION OF PROPOSED ACTION

HISTORY AND BACKGROUND

PROPOSED ACTION

General (Statement of proposal, location, land status, overall purpose and objectives of proposed action)

Components of the Management Program
(Brief Intro)

AMPs

(Brief Intro about AMPs and grazing systems in general, tabular summation)

Four Pasture Rest Rotation. (Start paragraph)

Three Pasture Rest Rotation. (Start paragraph)

Deferred Rotation. (Start paragraph)

Etc.

Custodial Management

Elimination of Grazing

Continuation of No Grazing

Specific Objectives

(specific objectives of AMPs)

Improvements

(Brief intro)

Fences

Fence Removal. (Start paragraph)

Cattleguards

Trails and Roads

Pipelines

Wells

Water Storage Tanks

Rainfall Catchments

Reservoirs

Springs

Water Troughs

Chaining and Reseeding

Plowing and Reseeding

Interseeding

Contour Furrows

Burning

Implementation Schedule

INTERRELATIONSHIPS

TABLE 3-2
PROPOSED USE BY ALLOTMENT

Allotment	Grazing System	Class of Livestock	Season of Use	Proposed Livestock AUMs At Start of Program	Preference	Wildlife Competitive Reservation In AUMs	Total AUMs Grazed In Alternative	Wild Horses Competitive Reservation In AUMs	Wild Horses Total Allocation In AUMs
1. Bar X	3-Pasture Deferred	Cattle	05/16-10/15	403	None	24	427	None	None
		Sheep	04/16-10/15	32					
		Horses	04/16-10/15						
2. Fish Creek	3-Pasture Alternately Grazed	Cattle	05/16-10/15	603	None	6	555	None	None
3. Gold Creek	4-Pasture Alternately Grazed	Cattle	05/16-10/31	2,907	None	275	3,339	None	None
4. Little Sands - Little Prospect	Combination 3-Pasture Alternately Grazed and 3-Pasture Rest-Rotation	Sheep	05/16-10/31	1,344					
		Cattle	05/16-10/31	8,134					
		Spring			210			None	None
		Fall			154				
						1,339	1,339	9,332	
5. Steamboat Mountain	2-Pasture Deferred	Cattle	05/16-10/15	1,281				None	None
		Sheep	Spring		80				
		Sheep	Fall		23				
						2,438	483	1,364	
6. Little Colorado - Green River Use Area	3-Pasture Rest-Rotation	Cattle	05/16-10/15	1,800	18			272	
		Sheep	05/16-10/15	2,400	240	1,891	143	145	3
Farnoo Use Area	3-Pasture Rest-Rotation	Sheep	04/16-10/15	1,200	80				
		Cattle	05/16-10/15	1,200	240	1,155	195	935	214
Big Sandy Use Area	3-Pasture Rest-Rotation	Cattle	05/16-10/31	1,200	12				
		Sheep	04/16-10/31	4,800	600	14,401	333	1,539	None
7. Red Desert	3-Pasture Rest-Rotation	Cattle	05/16-10/15	1,200					
		Sheep	11/1-12/15	4,800					
		Dual			144	5,130	144	1,867	1,867
8. Bush Rim	3-Pasture Rest-Rotation	Cattle	05/16-10/15	1,200					
		Sheep	04/16-10/15	2,400					
		Sheep			336	4,320	111	1,389	593
9. Continental Peak	3-Pasture Rest-Rotation	Sheep	04/16-10/15	1,200					
		Sheep	10/16-12/15	1,200					
		Cattle	05/16-10/15	1,200					
		Dual			24	3,624	106	898	384
10. Pacific Creek	3-Pasture Rest-Rotation	Cattle	05/16-10/15	1,200					
		Sheep	05/16-10/31	5,200				None	None
		Sheep			240	6,332	1,074	5,020	
11. Sands	3-Pasture Rest-Rotation	Cattle	05/16-10/15	1,200					
		Sheep	11/1-12/15	1,200					
		Dual			100	3,452	208	2,370	None
12. White Acres	Combination 2-Pasture Alternately Grazed and 3-Pasture Rest-Rotation	Cattle	05/16-10/15	1,200					
		Sheep	04/16-10/31	1,200					
		Sheep			168				
		Cattle			7				
						1,583	212	1,339	None
13. Prospect Mountain	Combination 2-Pasture Alternately Grazed and 3-Pasture Rest-Rotation	Cattle	05/16-10/31	1,200					
		Sheep	04/16-10/31	1,200					
		Sheep	Spring		12				
		Fall			83				
		Cattle	Spring		6				
		Fall			5				
						4,437	504	3,937	None
14. Reservoir	3-Pasture Rest-Rotation	Sheep	05/16-10/31	1,200	96				
		Cattle	05/16-10/31	1,200					
		Horses	04/16-10/31	1,200					
						1,296	24	870	None
15. Poison	3-Pasture Rest-Rotation	Horses	05/16-10/15	960					
		Sheep	11/16-12/15	1,200					
		Cattle	05/16-10/30	300					
		Cattle	04/16-10/31	240					
		Horses	05/16-10/31	48					
		Dual			84				
						4,074	120	3,350	None
16. Pine Creek	3-Pasture Rest-Rotation	Cattle	05/16-10/31	132					
		Sheep	04/16-09/2	144					
		Horses	4/16-10/31	69					
					None	3,337	35	180	None
TOTALS				112,953	1,972	144,058	6,092	35,636	3,360

Effective on operator's decision to convert to a class of livestock from that originally grazed.

An AUM is the amount of forage one cow, 1.4 pronghorn, 5 deer, 1.5 elk, 1 moose or 1 horse will eat in 1 month.

TABLE I-1

MANAGEMENT OBJECTIVES IN INTENSIVE MANAGEMENT AREAS

Element	Livestock Forage	Specific Wildlife	Terrestrial Wildlife	Watershed	Wild Ho
1. Bar X	Increase livestock forage production by 24 AUMs to a total of 402.	Obtain a cover of [illegible] along streambanks.	Provide forage for: 960 Antelope months 1,011 Deer months 32 Elk months 142 Moose months	80 AUMs 101 AUMs 2 AUMs 14 AUMs	Protect the vigor of plants affected by livestock grazing.	Non
2. Fish Creek	Increase livestock forage production by 111 AUMs to a total of [illegible].	Obtain a cover of [illegible] along streambanks.	[illegible]	10 AUMs 11 AUMs	Protect the vigor of plants affected by livestock grazing.	Non
3. Gold Creek	Increase livestock forage production by 1,516 AUMs to a total of 4,[illegible].	Obtain a cover of [illegible] streambanks.	Provide forage for: 2,340 Deer months 424 Elk months 11 Moose months	468 AUMs 53 AUMs 1 AUMs	Increase the channel stability of Gold Creek and Sweetwater River.	Non
4. Little Sandy-Little Prospect	Increase livestock forage production by 3,669 AUMs to a total of 14,[illegible].	Obtain a cover of [illegible] streambanks.	10,[illegible] Deer months 1,537 Elk months 31+ Moose months	1,[illegible] AUMs 192 AUMs 3 AUMs	Increase the ground cover to reduce accelerated erosion. Increase the channel stability of the Big Sandy River and Little Sandy Creek.	S
5. Steamboat	Increase livestock forage production by 672 AUMs to a total of 2,183.	Provide for a [illegible] livestock grazing to streambank plants. Reduce livestock damage to streambanks.	[illegible] vigor of [illegible] of the deer use areas. Provide forage for: 1,[illegible] Antelope months 3,292 Deer months 739 Elk months	113 AUMs 274 AUMs 62 AUMs	Reduce wind erosion and promote gully stabilization.	Non
6. Little Colorado	Increase livestock forage production by 21,879 AUMs to a total of 63,[illegible].	[illegible] of the use on streambanks. Increase rest from livestock grazing to streambank plants.	7,[illegible] Antelope months 1,156 Deer months 41 Elk months 5+ Deer months	1,[illegible] AUMs 233 AUMs 85 AUMs 12 AUMs	Increase the [illegible] gully erosion to lower the soil surface factor from 60 to 55 in canyons feeding the Green River.	Inc [illegible] AUMs wil
7. Red Desert	Increase livestock forage production by 2,743 AUMs to a total of 10,13[illegible].	Use by livestock [illegible] grass or riparian areas to [illegible] the [illegible] streambank damage.	Provide forage for: 12,[illegible] Antelope months 694 Deer months 97 Elk months	947 AUMs 97 AUMs 30 AUMs	Increase the ground cover of grasses to lower the soil surface factors in critical and moderate erosion condition areas.	Inc [illegible] AUMs
8. Bush Elk	Increase livestock forage production by 1,322 AUMs to a total of 6,950.	Reduce livestock [illegible] areas to less than [illegible].	Provide forage for: 4,[illegible] Antelope months 4,[illegible] Deer months 455 Elk months	[illegible] AUMs 455 AUMs 91 AUMs	Increase the ground cover of grasses to reduce accelerated erosion.	Inc [illegible] AUMs wil [illegible]
9. Continental Peak	Increase livestock forage production by 1,[illegible] AUMs to a total of 6,9[illegible].	[illegible] Sweetwater River.	Provide forage for: [illegible] Antelope months [illegible] Deer months 1,[illegible] Elk months [illegible] Moose months	5 AUMs 34 AUMs 1,[illegible] AUMs 15 AUMs	Increase the [illegible] stability of the Sweetwater River. Increase the soil [illegible] to [illegible] Buttes [illegible]	Inc [illegible] AUMs wil [illegible]
10. Pacific Creek	Increase livestock forage production by 2,[illegible] AUMs to a total of 13,[illegible].	[illegible]	Provide forage for: [illegible] Antelope months 1,[illegible] Deer months 1,[illegible] Elk months [illegible] Moose months	[illegible] AUMs 1,[illegible] AUMs [illegible] AUMs [illegible] AUMs	Reduce the soil [illegible] [illegible] soil [illegible] [illegible] [illegible] areas.	Inc [illegible]
11. Sands	Increase livestock forage production by 1,[illegible] AUMs to a total of 5,[illegible].	[illegible] streambanks to less than [illegible].	Provide forage for: 2,[illegible] Antelope months 3,[illegible] Deer months 827 Elk months	[illegible] AUMs 1,[illegible] AUMs 165 AUMs	[illegible] soil [illegible] [illegible] Riparian. Protect the [illegible] gully [illegible]	Non
12. White Acorn	Increase livestock forage production by 1,[illegible] AUMs to a total of 4,[illegible].	[illegible]	Provide forage for: [illegible] Antelope months [illegible] Deer months [illegible] Elk months [illegible] Moose months	[illegible] AUMs [illegible] AUMs [illegible] AUMs [illegible] AUMs	[illegible] [illegible] [illegible] of the Sweetwater River.	Non
13. Prospect Mountain	Increase livestock forage production by 1,[illegible] AUMs to a total of 4,[illegible].	Reduce [illegible] streambanks to less than [illegible].	Provide forage for: [illegible] Antelope months 11,[illegible] Deer months [illegible] Elk months 3.1 Moose months	[illegible] AUMs [illegible] AUMs [illegible] AUMs 3.1 AUMs	[illegible] [illegible] [illegible] Increase the channel [illegible] of the Big Sandy River and Little Sandy Creek.	Some

PROPOSED RANGE IMPROVEMENTS BY ALLOTMENT

Allotment	Water Developments	Fences	Cattleguards	2-Track Vehicle Access	Other
1. Bar X	2 reservoirs (pit)	None	None	None	None
2. Fish Creek	1 reservoir (pit)	None	None	1 mile	None
3. Gold Creek	None	12 miles 4-strand barbed wire	1	None	None
4. Little Sandy - Little Prospect	24 reservoirs (earthfill) 10 reservoirs (pit)	96 miles[1/] 4-strand barbed wire	17	17 miles	None
5. Steamboat Mtn.	2 reservoirs (earthfill) 4 reservoirs (pit)	34 miles[1/] 3-strand	7	2 miles	None
6. Little Colorado	23 wells (incl. storage tanks, pipelines and stock tanks 9 miles of pipeline)	45 miles 4-strand barbed wire, 103 miles 3-strand barbed wire.	17	7 miles	None
7. Red Desert	6 wells (incl. storage tanks, pipelines and stock tanks) 10 miles 3-strand barbed wire (fencing existing waters)	33 miles 3-strand barbed wire (boundary fence)	4	2 miles	None
8. Bush Rim	3 wells (incl. storage tanks, pipelines and stock tanks) 12 miles 3-strand barbed wire (fencing existing waters)	None	None	1 mile	None
9. Continental Peak	5 wells 3 reservoirs (earthfill) 2 miles 3-strand barbed wire (fencing existing and proposed waters)	None	None	4 miles	None
0 Pacific Creek	1 well (incl. storage tank, pipelines and stock tanks) 3 miles pipeline	09 miles[1/] 3-strand barbed wire	2	None	None
1. Sands	3 springs (incl. .65 mile 3-strand barbed wire water fencing) 1 well (incl. storage tank, pipeline and stock tanks) 11 reservoirs (pit) 1 reservoir (earthfill) 2 miles pipeline	46 miles 3-strand barbed wire	12	7 miles	None
2. White Acorn	15 reservoirs (earthfill)	39 miles 4-strand barbed wire	7	7 miles	None
3. Prospect Mountain	1 spring (incl. .35 mile 3-strand barbed wire water fencing) 10 reservoirs (earthfill)	39 miles[1/] 4-strand barbed wire	9	4 miles	Removal miles of fating
4. Reservoir	2 reservoirs (earthfill) 2 reservoirs (pit)	22 miles[1/] 4-strand barbed wire	2	3 miles	None
5. Poston	1 spring (incl. .39 mile 3-strand barbed wire water fencing, 4 reservoirs (earthfill), 3 reservoirs (pit), 4 miles pipeline	9 miles 3-strand barbed wire	None	4 miles	None

Range.

MFP Decisions:

1. Increase livestock forage and improve range condition through proper management and by designing and implementing grazing management systems where they do not now exist.

2. Align the areas of dominant Federal ownership into manageable allotments.

3. Fence the allotments, as required in a AMP, where livestock is not under immediate . . .

4. Develop waters . . .

5. Continue to take over waters . . .

6. Where water is needed for livestock . . .

7. Begin removal . . .

8. Determine wild horse management areas . . .

9. Limit surface use . . .

Relationship to the proposal:

The proposed action essentially is an activity plan that incorporates these management objectives. The AMPs would . . . considered in developing the allotment management plans.

Interrelationships with Other Projects and Management Practices

The Bureau's management of WSA in the San Luis Valley is related to projects or management practices of other federal agencies, state agencies, and to some extent private industries. The following discussion addresses the management proposals of other agencies and the activity related to geothermal energy to show the direct or indirect relationships between the other activities proposed for the valley and the grazing management action proposed by the Bureau. The agencies discussed include the Bureau of Reclamation (BR), U.S. Fish and Wildlife Service (USFWS), National Park Service (NPS), U.S. Forest Service (USFS), and Colorado Division of Wildlife (DOW).

Relationship to Bureau Planning System

Management Framework Plans (MFPs) covering the entire San Luis Resource Area have been completed in accordance with the BLM multiple use planning system. The Saguache MFP, which covers the northern half of the valley, was approved by the State Director in 1973. The San Luis MFP, approved in 1975, covers the remainder of the valley. Conflicts between recommendations for domestic livestock grazing and for alternative resource use were examined and resolved in the two MFPs. As a result, management decisions were made to reconcile grazing. These decisions were made after the evaluation of the grazing proposals to other resource proposals and after input from the general public, other agencies, and

interested people.

The Saguache and San Luis MFPs established the following grazing management objectives and constraints that were used in the preparation of Allotment Management Plans (AMPs) and other management prescriptions.

(1) Consider chemical or mechanical vegetative manipulation (e.g., chaining) as a last resort; instead, use livestock management to achieve vegetative changes.

(2) Combine allotments to maximum extent feasible in preparation of AMPs.

(3) Implement intensive grazing systems (on several specific allotments) to improve watershed condition by adjusting vegetative species and composition through livestock management.

(4) Impose constraints against certain classes of use by domestic livestock on specific allotments in consideration of wildlife habitat values (e.g., restriction of fall and winter use by livestock in favor of bighorn sheep on Trickle Mountain).

(5) Maintain unallotted status on specific parcels in consideration of alternative and more efficient uses (e.g., exchange for private land in order to achieve better-blocked configuration of national resource lands).

(6) Continue custodial grazing management on several specific allotments because no specific problems or opportunities exist that call for more intensive domestic livestock management.

(7) Recognize the importance of domestic livestock grazing on the national resource lands as a significant factor in the economic stability of the San Luis Resource Area. Many grazing allotments provide a strategic or critical use period that highlight their importance in providing operators with a year-round operation, thereby stabilizing agriculture, which is the most important form of income in the valley.

General goals for grazing management that were developed in the MFPs for use in preparation of activity plans (AMPs, etc.) are as follows:

(1) Maintain or improve existing wildlife habitat on 516,371 acres of national resource lands.

(2) Increase ground cover, plant composition, and density, and reduce

erosion class on 473,916 acres of national resource lands.

(3) Maintain or increase riparian habitat, particularly woody streambank vegetation, on 47 miles of permanent streams on national resource lands.

(4) Maintain or increase production approximately 36,000 AUMs of domestic livestock forage on national resource lands.

Specific objectives that are the basis for developing management prescriptions on each AMP are shown in table I-4 (pp.I-24 f.). In the MFPs domestic livestock grazing was found to be an acceptable use of the national resource lands.

For the most part, the grazing program proposed in this statement follows the recommendations of the MFP. Some deviations from the grazing recommendations, however, do occur in the proposed action as a result of the more intensive field analysis done during the preparation of the AMPs. These changes were made in order to better meet planning recommendations of other resources, particularly wildlife and watershed. For example, the MFP called for grazing on all of the allotments; but now, however, the elimination of grazing has been proposed on nine allotments. Such a change resulted from a closer examination of the allotments with respect to steepness of slope, wildlife needs, and erosion condition of the soil surface. Another example of deviation occurred where two or more allotments were combined into one AMP, in addition to combinations specifically identified in the MFP recommendations. These allotments were combined in order to create better management opportunities, reduce supervision needs, and lower the cost of developing fences, water sources, and other range improvements. Planning decisions as developed in the MFPs are available in the Canon City District Office and the San Luis Resource Area Office in Alamosa.

TABLE 3-17

MULE DEER HABITAT

Allotment	Pasture	Winter Habitat Acres and Percent of Pasture Acres		Yearlong Habitat Acres and Percent of Pasture Acres	
1. Bar-X					
	1			2,100	(100)
	2			2,500	(100)
	3			2,200	(100)
TOTAL				6,800	(100)
2. Fish Creek					
	1			3,400	(100)
	2			3,800	(100)
TOTAL				7,200	(100)
3. Gold Creek					
	1			4,700	(100)
	2			10,600	(100)
	3			5,300	(100)
	4			5,900	(100)
TOTAL				30,500	(100)
4. Little Sandy/Little Prospect	1	31,300	(75)	41,800	(100)
	2	43,600	(75)	57,400	(100)
	3	42,700	(75)	57,000	(100)
	4	4,000	(25)	16,100	(100)
	5	6,100	(45)	13,500	(100)
TOTAL		127,100	(66)[17]	185,800	(97)
5. Steamboat Mountain	1	10,600	(45)	23,550	(100)
	2	4,200	(25)	17,000	(100)
TOTAL		14,800	(36)	40,500	(99)
6. Little Colorado Green River Use Area	1			36,400	(35)
	2			17,600	(15)
	3			12,900	(15)
SUBTOTAL				66,900	(22)
Big Sandy Use Area	1			6,800	(10)
	2			25,700	(33)
	3			72,100	(100)
SUBTOTAL				104,600	(71)
TOTAL				171,500	(23)
7. Red Desert	2			4,300	(5)

TABLE 2-18

WILDLIFE SPECIES TYPICAL OF VEGETATIVE TYPES IN THE CHALLIS UNIT

Season of Use W = Winter S = Summer Y = Yearlong Typical Wildlife Species	Vegetative Type					
	Sagebrush-grass	Grass	Shadscale	Mountain mahogany	Riparian	Conifer
Mule deer	Y			Y	S	Y
Elk	W	W		W		Y
Antelope	Y	Y	Y			
Bighorn sheep	W	W		W		
Black bear						Y
Mountain lion				S		S
Lynx						S
Pine marten						Y
Red squirrel						Y
Porcupine						Y
Mink					Y	
Muskrat					Y	
Raccoon					Y	
Beaver					Y	
Chipmunk	Y	S	S	S	Y	Y
Mountain vole						Y
Weasel	Y	S		S	Y	Y
Grasshopper mouse		Y				
Northern pocket gopher		S				
Sagebrush vole	S					
Richardson's ground squirrel	S	S	S			
Shrew	S	S			S	
Mountain cottontail	Y	Y			Y	Y
Black-tailed jackrabbit	Y	Y	Y			
White-tailed jackrabbit	Y	Y				
Coyote	Y	Y	Y	Y	Y	Y
Sage grouse	Y	S				
Blue grouse	S				S	Y
Chukar	Y	S	Y			
Mourning dove	S	S	S		S	
Meadowlark	S	S	S			
Horned lark	Y	Y				
Vesper sparrow		S				
Black-capped chickadee				Y	Y	Y
Downy woodpecker					Y	Y
Killdeer					S	
Phalarope					S	
Yellow-rumped warbler					S	
Western rattlesnake	S	S	S		S	S
Sagebrush lizard	S	S				
Short-horned lizard		S				

TABLE 3-11

ANIMAL SPECIES REPRESENTATIVE OF THE STUDY AREA, GROUPED ACCORDING TO SIMILARITIES IN HABITAT REQUIREMENTS, BEHAVIOR, OR LIFE FORM

GROUP I	Pronghorn Antelope Mule Deer White-tailed Deer Sagebrush Vole Deer Mouse Least Chipmunk
In the study area, these animals are heavily dependent upon sagebrush for food or cover or nesting sites or combination thereof and on other upland shrubs such as greasewood saltbush and rabbitbrush, especially for winter feed.	White-tailed Prairie Dog White-tailed Jack Rabbit Desert Cottontail Sage Grouse Sage Sparrow Sage Thrasher Brewer's Sparrow Green-tailed Towhee Flycatcher, spp Sagebrush Lizard
GROUP II	Northern Grasshopper Mouse Thirteen-lined Ground Squirrel Richardson's Ground Squirrel
In the study area, these animals feed heavily on seeds and/or foliage or roots of seedy stems of forb or grass species and/or nest on ground in open grasslands.	Northern Pocket Gopher Ord's Kangaroo Rat Horned Lark Savannah Sparrow Grasshopper Sparrow Vesper Sparrow Horned Lark
GROUP III	
In the study area, these animals nest on the ground in open grasslands and/or feed primarily on perennial grass seeds or foliage.	Prairie Vole Chestnut-collared Longspur McCown's Longspur
GROUP IV	Raccoon Mink Striped Skunk Beaver Muskrat Long-tailed Vole
In the study area, these animals depend primarily on the riparian (stream-side) plant associations and/or marshy or moist meadow areas around lakes or ponds to directly or indirectly provide food or cover or nesting or breeding sites or combinations thereof.	Black-billed Magpie Red-winged Blackbird Wilson's Snipe Eastern Kingbird Traill's Flycatcher Goldfinch Catbird Long-billed Marsh Wren Brewer's Blackbird Robin Yellow Warbler Yellowthroat Long-tailed Chat Brown-headed Cowbird Western Yellow-billed Cuckoo Western Terrestrial Garter Snake
GROUP V	Mountain Cottontail Elk Mule Deer White-tailed Deer Porcupine Mule Deer
In the study area, these animals require the more productive, juniper breaks or rough, rocky topography for cover or food or nesting sites or a combination thereof.	
GROUP VI	Invertebrates including a wi of insect fami spiders such a
The composition of insect and spider populations and the relative abundance of different taxonomic groups vary with season, vegetative type and stage of succession. This is generally a greater variety of insects and a greater number of individuals in the intermediate stages of successional succession than in either the early or climax stage. Invertebrates are one of the three major groups of prairie animals.	Springtails Long-horned Gr Short-horned G Earwigs Thrips Plant Bugs Lace Bugs Seed Bugs Leafhoppers Aphids Ground Beetles Carrion Beetle Darkling Beetl Dorbeetid Beet Snout Beetles Moths Midges Mosquitoes Wasps Ants Harvestmen Wolf Spiders Orb Weaver Spi etc., etc.
GROUP VII	Hoary Bat Little Brown B Vagrant Shrew Masked Shrew
These species are all highly attractive, if not totally so, their presence, activity, and density has significantly increased by the status of local forest populations.	Grasshopper Mo Common Nighth Western Kingbi Say's Phoebe Bank Swallow Rough-winged S Eastern Bluebi Mountain Blueb
	Loggerhead Shr Bobolink Meadowlark Eastern Short- L
GROUP VIII	Waterfowl, Shc Amphibians, an
Members of these animal groups find within the study area their best habitat requirements upon the [illegible] portions of [illegible]	Grebe Herons Geese Dabbling Ducks Diving Ducks Sandpipers Snipe Avocets Phalaropes Solitaires Frogs Toads Trout Minnows Suckers

TABLE 2-12 [illegible]

ANIMAL SPECIES [illegible] OF THE STUDY AREA, LISTED ACCORDING TO SIMILARITIES IN HABITAT REQUIREMENTS, FEEDING, OR LIFE FORM

GROUP IA	
These animals are somewhat widespread [illegible] flexible [illegible] prey, [illegible] on [illegible] other group [illegible] abundance and distribution are [illegible] primarily by availability of prey species; however, it is strongly influenced by the availability of nesting trees, den sites, or burrows	Coyote Red Fox Kit Fox Long-tailed Weasel Black-footed Ferret Badger Great Horned Owl Burrowing Owl Long-eared Owl Short-eared Owl Cooper's Hawk Red-tailed Hawk Swainson's Hawk Rough-legged Hawk Ferruginous Hawk Bald Eagle Golden Eagle Marsh Hawk Prairie Falcon Sparrow Hawk Millsnake Bullsnake Prairie Rattlesnake

APPENDIX X

EXISTING AND PREDICTED RATES, BOTTOM
SEDIMENTATION TO EASTSIDE ALLOTMENTS

Allotment Pasture #		Area	Existing Rate (tons/acre/yr)	Total Tonnage	Predicted Rate (tons/acre/yr)	Total Tonnage
Par X		91	7.52		3.94	
#1		102	.18		.18	
		204	6.30		2.15	
		345	1.91		.83	
		1,402	2.36		.86	
	TOTALS	2,144	4.20	8,960	1.03	2,187
#2		208	.18		.18	
		2,788	1.91		.83	
		87	2.36		.86	
	TOTALS	3,083	1.46	4,518	.64	1,978
#3		787	7.52		3.94	
		1,448	1.91		.83	
	TOTALS	2,235	3.84	8,571	1.93	4,307
Fish Creek		127	.18		.18	
#1		3,541	2.36		1.41	
	TOTALS	3,668	2.32	7,688	1.36	4,604
#2		1,889	2.36		1.41	
	TOTALS	1,945	2.32	9,091	1.41	2,426
Gold Creek		310	310	.04	.04	
#1		857	2.30		1.35	
		3,915	1.20		1.79	
	TOTALS	4,082	1.65	8,682	1.59	7,435
#2		10,591	1.79		1.79	
	TOTALS	10,591	1.79	18,965	1.79	18,958
#3		180	.18		.18	
		1,972	2.36		1.14	
		221	.04		.04	
		1,724	2.30		1.35	
		5,166	1.20		1.79	
	TOTALS	9,127	2.05	18,722	1.49	13,939
~~Gold Creek~~		1,264	2.30		1.35	
#4		4,576	1.20		1.79	
	TOTALS	5,845	2.43	14,751	1.49	8,951
Little Sandy/ Little Prospect		222	.41		.32	
#1		15,[illegible]	1.00		.52	
		16,439	1.00		.56	
		1,608	8.30		2.15	
		4,030	7.52		3.94	
		320	1.41		.83	
		5,968	2.36		.30	
		1,654	40.60		22.75	
		1,[illegible]	55.26		30.57	
		163	2.36		1.22	
	TOTALS	41,959	4.75	199,662	2.90	123,478
#2		753	.41		.32	
		1,484	.37		.16	
		947	0		0	
		814	1.32		.35	
		11,748	1.00		.52	
		2,[illegible]	2.36		1.00	
		1,[illegible]	1.00		.76	
		2,179	1.00		.56	
		1,186	8.30		2.15	
		9,032	7.52		3.94	
		1,[illegible]	2.41		.30	
		1,[illegible]	.04		.05	
		10,[illegible]	40.60		22.45	
		5,[illegible]	55.26		30.57	
	TOTALS	57,[illegible]	8.52	489,[illegible]	4.94	281,[illegible]

How Determined

TABLE 3-3

EXPECTED IMPACT ON SHEET EROSION

Allotment	Pasture	Existing Rate	Existing Tons/Year	Future Rate	Future Tons/Year	% Reduction	Geologic Erosion
Bar X	1	2.86	6850	1.43	2187	68	1950
	2	1.38	3518	.58	1478	58	2335
	3	1.69	5971	1.03	3641	50	2045
High Creek	1	2.44	7685	1.56	4904	36	3171
	2	1.30	8381	1.28	8242	60	3512
Gold Creek	1	1.50	3408	1.50	3405	16	4080
	2	1.74	18958	1.74	18958	0	9723
	3	2.03	19912	1.66	13429	26	8562
	4	2.38	14751	1.42	8851	40	5458
Little Sandy-Little Prospect	1	4.52	18[illegible]	2.96	12[illegible]	35	[illegible]
	2	2.85	19[illegible]	1.44	8[illegible]	50	5e[illegible]
	3	3.63	22386	1.76	10[illegible]	55	52297
	4	3.36	37980	1.82	2[illegible]	23	14767
	5	2.17	[illegible]21	1.21	[illegible]18	22	12432
Steamboat Mtn.	1	22.46	1[illegible]	1.35	2[illegible]1	15	21[illegible]
	2	11.67	2[illegible]	10.35	17[illegible]	16	15843
Green River	1	2.91	2[illegible]	1.6[illegible]	16[illegible]	43	93730
	2	2.25	264121	1.27	148221	44	107568
	3	2.00	169[illegible]	1.24	10[illegible]	38	77583
Parson	1	3.55	2[illegible]	2.05	1[illegible]	42	53631
	2	3.74	230401	2.42	14[illegible]	37	57931
	3	3.12	2[illegible]	1.91	1[illegible]	39	76240
Big Sandy	1	2.43	1[illegible]	1.46	[illegible]	40	62607
	2	4.35	3[illegible]7	2.65	19[illegible]	42	71410
	3	3.09	2[illegible]	1.86	1[illegible]	40	66166
Red Desert	1	2.83	2[illegible]	2.41	2[illegible]	15	73638
	2	2.81	222547	2.14	1[illegible]62	24	72510
	3	2.10	1[illegible]89	1.62	13[illegible]	23	74098
Bush Rim	1	6.05	2[illegible]	4.31	1[illegible]	28	33933
	2	10.62	4[illegible]59	8.71	305315	28	32176
	3	4.28	1[illegible]82	3.48	1[illegible]96	27	29865
Continental Peak	1	6.65	1[illegible]50	3.55	11[illegible]50	48	28350
	2	9.33	2[illegible]88	6.14	173139	44	25895
	3	6.47	1[illegible]44	5.09	1[illegible]29	21	26978
Pacific Creek	1	9.35	6[illegible]7	5.90	3[illegible]88	38	65504
	2	10.33	647[illegible]28	7.38	46[illegible]60	29	57515
	3	2.36	2[illegible]98	1.60	10[illegible]01	32	62844
Sands	1	2.[illegible]	1[illegible]45	1.62	65552	37	35521
	2	6.28	2[illegible]04	5.55	210202	12	34871
	3	5.21	3[illegible]15	4.13	1[illegible]15	21	35042
White Acorn	1	2.93	6[illegible]90	2.77	34709	45	11696
	2	5.53	44540	3.15	25343	43	7388
	3	3.43	24962	1.92	13645	44	7484
	4	2.25	17170	1.84	14307	18	6997
	5	2.41	2[illegible]5	1.93	19772	20	9391
Prospect Mtn.	1	4.28	4[illegible]6	2.23	2[illegible]1	48	9297
	2	3.77	69[illegible]2	2.27	4[illegible]3	35	17012
	3	4.03	59[illegible]4	2.55	3[illegible]7	37	13522
	4	2.86	38[illegible]4	1.72	2[illegible]5	40	12303
	5	2.61	26[illegible]0	1.79	1[illegible]2	31	9142
Reservoir	1	1.83	1[illegible]6	1.22	13[illegible]	33	10035
	2	4.01	5[illegible]6	2.33	31327	42	12335
	3	2.77	2[illegible]7	1.64	15312	41	10260
Poston	1	4.91	8[illegible]4	2.84	4[illegible]5	42	15475
	2	4.62	87171	2.77	52360	40	17363
	3	1.87	27[illegible]	1.14	16[illegible]	39	13645
Pine Creek	1	2.73	17[illegible]7	1.78	1[illegible]6	20	5223
	2	2.19	10[illegible]4	1.73	7925	21	4212
	3	2.35	8[illegible]7	1.79	6485	28	3499

Total

Impact of this

TABLE 3-6

SHORT-TERM WATER USE BY LIVESTOCK

Allotment	Active AUMs[1]	Gallons Required Per Year[2]	Gallons by Treatment[3]				
			A	B	C	D	E
Bar X	394	118,200		39,400	Rest	39,400	39
Fish Creek	657	197,100	197,100				
Gold Creek	2,692	807,600		403,800			403
Little Sandy-Little Prospect	10,923	3,276,900	2,182,415	1,094,485			
Steamboat Mtn	1,411	423,300		190,485			232
Little Colorado	42,617	12,785,100	6,392,550	6,392,550			
Red Desert	15,241	4,572,300		2,286,150			2,286
Bush Rim	5,352	1,605,600		802,800			802
Continental Peak	5,755	1,726,500		863,250			863
Pacific Creek	10,362	3,108,600		1,554,300			1,554
Sands	3,862	1,158,600	579,300	579,300			
White Acorn	3,746	1,123,800	741,708	382,092			
Prospect Mtn.	3,545	1,063,500	701,910	361,590			
Reservoir	1,843	552,900	276,450	276,450			
Poston	3,528	1,058,400	529,200	529,200			
Pine Creek	985	295,500		147,750			147
Custodial Pastures	1,324	397,200	N/A	N/A	N/A	N/A	
Totals	114,237	34,271,100	11,600,633	15,903,602	0	39,400	6,336
Acre-Feet		105,14[illegible]	35.6	48.8	0	12	19

1/ From TABLE 1-2.

2/ 300 gallons per AUM.

3/ Based on projected use (AUMs).

* Includes custodial pastures.

TABLE 4-8

RUNOFF AND SEDIMENT YIELD BY PASTURE (ON-SITE IMPACTS)

Allotment Pasture	Existing 1/ Sediment Yield Tons/mi.^{2}	Estimated 2/ Future Sediment Yield Tons/mi.^{2}	Existing 3/ Runoff Acre-ft./mi.^{2}	Estimated 4/ Future Runoff Acre-ft./mi.^{2}
Bar X				
1	[illegible]	[illegible]	[illegible]	35.1
2	[illegible]	[illegible]	[illegible]	25.4
3	[illegible]	[illegible]	[illegible]	25.4
Fish Creek				
1	[illegible]	[illegible]	[illegible]	34.4
2	[illegible]	[illegible]	[illegible]	25.4
Gold Creek				
1	[illegible]	[illegible]	[illegible]	51.3
2	[illegible]	[illegible]	[illegible]	53.0
3	[illegible]	[illegible]	[illegible]	30.5
4	[illegible]	[illegible]	[illegible]	30.5
Little Sandy-Little Prospect				
1	[illegible]	[illegible]	[illegible]	15.3
2	[illegible]	[illegible]	[illegible]	14.7
3	[illegible]	[illegible]	[illegible]	14.2
4	[illegible]	[illegible]	[illegible]	25.9
5	[illegible]	[illegible]	[illegible]	26.2
Steamboat				
1	[illegible]	[illegible]	[illegible]	4.9
2	[illegible]	[illegible]	[illegible]	4.9
Little Colorado-Green River				
1	[illegible]	[illegible]	[illegible]	19.3
2	[illegible]	[illegible]	[illegible]	13.3
3	[illegible]	[illegible]	[illegible]	13.3
Farson				
1	[illegible]	[illegible]	[illegible]	10.0
2	[illegible]	[illegible]	[illegible]	12.4
3	[illegible]	[illegible]	[illegible]	20.4
Big Sandy				
1	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]
Red Desert				
1	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]
Continental Peak				
1	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]
Pacific Creek				
1	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]
Sands				
1	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]
White Acorn				
1	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]

1/ From Map 2-t. Tons/mi.^{2} = tons of sediment per 640 acres.
2/ Based on Appendix 5.
3/ From generalized runoff map (Crim, 1974). Acre-ft./mi.^{2} = 325,900 gal./640 acres.
4/ Based on a study by [illegible]by, et al, 1971.

TABLE 3-10

CHANNEL STABILITY

short or long term

Allotment Posture		Stream	Allotment Miles	Nat Miles	Miles Ratio	Present Channel Stability	Channel Stability Potential	Estimated Future Channel Stability Proposed Acres
Bar X						1/	1/	
	I	Sweetwater	3.0	- -	--	99 1/	79 1/	114
	II	Sweetwater	5.0	- -	--	99	79	114
	III	Sweetwater	1.5	.25	.25	99	79	114
Fish Creek								
	I	Fish	2.25	1.05	1.00	85	78	113
	II	Fish	5.25	.85	.75	104	90	107
Gold Creek								
	I	Gold	4.75	4.25	4.00	111	105	118
		Jack	3.2	2.5	3.0	115	106	123
		East Fork Sweetwater	1.25	1.5	1.25	97	88	111
	II	Little Sweetwater	1.25	1.25	1.25	100	92	111
		Clear	2.00	1.75	2.00	105	100	108
		East Fork Sweetwater	3.75	3.25	3.75	88	80	91
		Mill	7.5	3.0	7.5	95	89	107
	III	Fish	2.75	.90	1.00	92	89	106
	IV	Pine	5.00	2.00	2.00	99	94	109
		West Willow	1.85	1.1	1.10	93	89	104
		Willow	.50	.5	.50	74	74	85
		Little Pine	1.2	.3	1.2	105	93	112
Little Colorado Green River Use Area								
	II	Green	21.00	8.0	21.00	85	78	91
Big Sandy Use Area	I	Big Sandy	10.0	.5	10.0	109	97	116
	II	Big Sandy	13.0	5.5	13.0	91	88	95
	III	Big Sandy	7.0	2.5	7.0	114	105	118
Steamboat Mtn.						2/	2/	
	I	Jack Morrow	3.5	3.0	0	110 2/	89 2/	117
	II	Jack Morrow	3.0	1.5	-	110	89	117
Continental Peak								
	I	Sweetwater	.5	.5	.5	99	79	114
Pacific Creek								
	I	Jack Morrow	13.00	13.00	3.00	110	89	117
	II	Pacific	14.75	3.95	4.25	101	97	115
	III	Pacific	17.00	12.5	13.25	109	92	112
White Acorn								
	III	Sweetwater	7.5	3.5	3.25	83	77	91
	IV	Sweetwater	2.25	2.25	2.25	76	72	84
		Blucher	4.75	2.0	1.25	114	86	122
		Tie	1.75	1.5	1.5	100	96	116
	V	Lander	5.0	1.25	--	--	--	--
		Sweetwater	9.25	5.5	8.75	83	75	91
		Blujcher	4.25	--	--	--	--	--
Prospect Mountain								
	I	Big Sandy	10.0	.75	10.0	100	92	108
	II	Big Sandy	30.0	.5	10.0	111	107	119
	IV	Big Sandy	10.5	3.5	10.5	79	79	91
		Dutch Jo	3.75	2.0	2.75	83	80	96
	V	Squaw	3.5	1.0	1.0	97	91	113
		Cross	.25	.25	.25	95	92	110
		Little Sandy	4.5	1.0	3.5	103	72	113
Reservoir								
	I	Big Sandy	7.75	--	7.75	111	111	120
	II	Big Sandy	10.75	1.00	1.25	111	111 1/	120
	III	Big Sandy	3.25	--	--	111 1/	111	120

13. All earthfill reservoirs would be fenced. The fence would be fifty feet from the high water mark on the reservoir and five feet below the lower edge of the reservoir dam.

Stock watering facilities would be located outside the fence at the lower edge of the reservoir and would be fed by gravity flow through a pipe.

As a result of fencing, the following impacts would be mitigated:

a. Increased vegetation would reduce sheet erosion and overland flow and resulting sediment in the reservoir. If vegetation can be increased to 80% ground cover, sheet erosion could be reduced to a rate of .90 tons/acre/year and .86 tons/acre/year for pits. This would be .86 tons per year for reservoirs and .60 tons per year for pits. Increased vegetation along the water's edge would also reduce wave action erosion, which is particularly important on dams.

b. Decreased damage to the spillway and dam caused by trampling and movement of cattle in and out of the water on dams and spillways.

c. Decreased damage to dam and spillway caused by wave action due to increased vegetation at water's edge.

d. Reduced turbidity from wave action and cattle movement on the shoreline and in the water would be beneficia to plankton and insects. This would enhance the habitat's

Impact of Fencing on the Visual Resource

LLM
PPA
SOL

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

Concur 1/24/77

January 21, 1977

Concur 1-24-7

Memorandum

To: Director, Office of Environmental Project Review

From: Robert Reiske

Subject: Field Review of Proposed Tonopah Grazing Program - Preliminary DES (Reno, NV) (BLM)

This is a resume of my review of the subject preliminary draft environmental statement. The following needed corrections were presented to the EIS Team verbally and in note form. The review also included a marked-up copy of the document.

1- Chapter I: The proposal needs to show total acres and AUM's for livestock, wildlife, and wild horses available for immediate utilization and at 15 years. The term "AUM" needs to be defined and needs to include the amount or unit of forage utilized by the various types of animals; i.e., livestock, wildlife, and wild horses.

2- Forage production capability needs to be presented for major vegetation types by major soil taxonomic units for each allotment. This basic information is needed in Chapter II.

3- However, total AUM's proposed for each AMP need to be calculated from such data and presented in Chapter I in a single table and not in Appendix Table A-1, AUM's Available or Used, and again in Table I-2, Objectives.

4- It was noted that different figures are shown for these tables. Such differences need to be corrected. Also, using the terms objectives and proposal in a synonymous manner needs to be corrected.

5- In addition, Table I-1 needs to be changed to show number of AMP's for the proposed grazing systems. This should include acres by grazing system, and AUM's by grazing system.

6- The number of factors utilized to determine the 14 allotments (AMP's) of the proposed program is left hanging on page I-10.

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6 - How they were determined for the proposal needs to be spelled out. The six steps for setting up the AMP's noted on page I-12 are only a partial answer to the above problem. Specification of the criteria used should be presented before we address the intensive management systems of the proposed grazing program.

Further, it was noted that the six steps on page I-12 need to clarify and/or define the following items:

7 -

1. a/ The types of resource data, and

   b/ The reasons for contacting range users.

2. Were there any resource problems; if so, what were they?

3. Are the objectives related to the MFP: if so, how?

4, 5,6. Are these not part of the grazing systems rather than AMP determining factors?

8 -

6. Are new methods for studies being developed or are we using standard studies already established by BLM? If there are study methods already in use, we need only to cite where they are documented. If there are to be new study methods, we need to state how and when they will be developed. Further, the Team was notified that evaluation procedures for Item 6 need to be presented and not be left in doubt as noted in paragraph 2 on page I-12. Studies that "may not be done" are meaningless. It is assumed that these studies are a form of mitigating measures and, as such, need to be specific and stated in a positive manner.

9 - "Carrying capacity of each pasture" is shown as a criteria for the Deferred Rest Rotation Grazing System in paragraph 2 on page I-32. No criteria is presented for any of the other three systems. Such criteria need to be presented for all grazing systems. Definitions for technical terms used in the criteria also need to be presented; e.g., carrying capacity.

10- Other definitions and clarifications needed in Chapter I include the following for Table I-4:

Column	Question
A-	What are adjudicated Class I active AUM's?
B-	What are AUM's active use in MFP decision?
C-	Are these the proposed AUM's for each AMP?
DEFG-	Were there conflicts with the MFP; are these figures to be the proposal?
H-	Where is the base figure for these percents?
K-	Is this the proposed use for each AMP? Don't we need to add AUM's for livestock, wild horses, and wildlife to get total AUM's for the proposal?

11- Aerial spraying and aerial spray and seed measures mentioned on page I-55 as part of the proposal need to be clarified as they relate to Table I-6. Are these the same areas? If so, the acreage figures are not consistent.

12- The interrelationship discussion on the MFP's vs. AMP's needs to be more specific for minerals and wild horses. It is understood that mineral management takes priority over grazing. However, the AMP's where this could take place, need to be identified by name, acres, and AUM's. The type of mineral development should also be identified. As to the wild horse situation, approximately 1,500 horses are presently using the area. A reduction of 1,000 horses is planned as the result of the MFP. However, it is difficult to see how this planned reduction is not part of the proposed grazing program.

13- If the reduction is not completed before the implementation of the proposed grazing program, it will need to be analyzed as part of the subject program. In other words, the schedule for the reduction of wild horses should be presented as part of the discussion on interrelationships between the MFP's and AMP's.

14- Finally, Chapter I needs to be more specific about the scientific basis for establishing the grazing systems of the proposal as noted on pages I-29-34. Are the areas where Hormay

did his work identical for all of the environmental factors existing in the proposed Tonopah area? If true, we should say so. However, if this is not true, the authors of the EIS need to state how and where BLM applied their judgments and expertise. Further, it is advised that the EIS Team utilize other grazing research and technical guides cited in the appendix, particularly for soil and vegetation studies of the FS, SCS, and others. The EIS is silent as to what percent of the total herbage produced on the areas will be allowed to be utilized by the grazing stock for the various grazing systems. This important relationship is not discussed and needs to be addressed in a specific manner for each grazing system. 14

Chapter II: This chapter on description of the environment needs to be edited to remove much excessive material that is not being utilized directly or indirectly in the analysis of impacts. As mentioned previously, the Soil section of this chapter needs to be corrected to include existing soil productivity data for the major vegetation types by soil taxonomic units for each of the 14 AMP's. Such data is to be complied by BLM as agreed during a special meeting of key EIS Team members, the Tonopah District Manager, the Nevada State Soil Scientist of SCA, Dick Traylor, and Bob Reiske. 15

The description of the subsection on Future Environment Without the Proposal (FEWP) needs to be edited to delete the material on impacts. This section should only address future trends without the proposal. The impact information needs to be utilized in the analysis of impacts for the No Action Alternative. 16

Further, the reference to the San Luis Watershed Study in New Mexico in this subsection (FEWP) needs to be checked. Their degree of applicability to the Tonopah area is not established. And, there is some question as to the two areas having similar environmental conditions. 17

Chapter III: This chapter on Impacts needs to be redrafted to present a comprehensive analysis of cause and effect of the proposed action on each of the various resources and uses of the area. Bottom line conclusions are also needed for each analysis. The analysis of soil and water impact needs to be separate. Tables may be used to summarize impacts but they are not a substitute for the analysis. 18

19- Chapter VIII: The chapter on alternatives needs to reflect an environmental analysis of other alternative management schemes beyond the No Action and the Minimal Investment Alternatives. Further, the No Action Alternative and the references to the Nevada Range Policy needs to be clarified. Continuation of the existing management is not the same as adoption of the Nevada Range Policy. These are two potential alternatives and they should be presented and analyzed as such. The exact differences between them needs to be specified and evaluated for its environmental impact.

20- Further, because of the fact that the B/C studies need to be corrected because they did not consider costs of fencing, it is highly probable that we will be considering other alternative management schemes. Regardless of the outcome of correcting the B/C studies, it is noted that the EIS has ignored the fact that of the 14 allotments, six have a B/C ratio of less than one-to-one. As a minimum, these six allotments should be analyzed as a package with substantative reduction of AUM's and developments, and/or removing livestock entirely. Perhaps four of the six AMP's packages might go with only reducing the AUM's and developments. The other two might require removing livestock entirely, particularly for those which have B/C of less than 0.5 to 1.0. The analysis of this package may reveal that the reasons for these less than one-to-one ratios may be due to critical and/or fragile soil and vegetation resources.

In summary, it is imperative that the Alternative chapter be corrected to present a comprehensive analysis of potential operational alternatives for the decision maker to consider and compare with the proposal, covering a range of reduced grazing use.

Comments on Chapters IV-VII are not presented. These chapters have to be redrafted in accordance with the corrections to be made in Chapters I, II, III, and VIII.

IN REPLY REFER T

United States Department of the Interior

1792 (D-380)
Tonopah ES

BUREAU OF LAND MANAGEMENT
DENVER SERVICE CENTER
DENVER FEDERAL CENTER, BUILDING 50
DENVER, COLORADO 80225

04 FEB 1977

Memorandum

To: Ray Monroe, Team Leader, Tonopah ES

From: Environmental Coordinator

Subject: Analysis of OEPR's Comments on Tonopah PDES (1/21/77)

I have reviewed the comments made by Bob Reiske of OEPR on the Tonopah PDES in his memorandum of January 21, 1977 (Encl. 1). The numbers on the memorandum relate to the analysis of comments (Encl. 2). If you have any questions please contact me.

[illegible] Richard [illegible]

Enclosures

cc:
W.O. 260 w/encls.
W.O. 330 w/encls.
SD Nevada w/encls.✓

ANALYSIS OF OPEPR's COMMENTS ON TONOPAH PDES 1/21/77

Comment 1: This comment should be complied with in part. A similar comment was made in the Bureau review. However, the predicted AUMs at the end of 15 years should not be shown in Chapter 1. These are not known until the analysis is completed and do not describe the proposed action.

Comment 2: Forage production capability does need to be developed. It is developed through correlation of soils and vegetative data on a pasture level basis. However, this detailed information is not presented in the ES. It does, however, have to be available upon request. A summary of potential productivity by allotment does need to be presented in Chapter 2 in the vegetation section. It is the concensus of both range and soil specialist in DSC that this information belongs in the vegetation section not the soils section.

Comment 3: It is true that the proposed AUM use levels have to be shown in Chapter 1. Procedure in development of these proposed use levels is at the discretion of the District personnel.

Comment 4: Bureau review comments dealt with clearing up the confusion surrounding the livestock forage objectives. They should be followed. The two terms should not be used synonymously.

Comment 5: This data should be shown, however, do not believe that it can be shown in the same table as the proposed action. A separate table should be prepared showing this data.

Comment 6: Bureau comments also dealt with this area. It was recommended that these factors be deleted. It is immaterial for purposes of developing the ES as to why allotments and systems were selected for various areas. Inclusion of this type of rationale and criteria would tend to become justifying in tone. The purpose of the ES is to take the action as proposed and analyze its environmental impacts. The analysis of why certain items of the proposal were designed as they were has to occur either in the MFP or the AMPs.

Comment 7: See response to Comment 6. These were recommended to be deleted in the Bureau comments. The relationship of AMP objectives to MFP objectives is to be described in the interrelationship section of Chapter 1.

Comment 8: As indicated in the Bureau comments, the studies and evaluation procedures are only mentioned in Chapter 1 with a reference to the section in Chapter 4 where they are described in detail.

Comment 9: This comment is similar to numbers 6 and 7. Criteria and reasons behind design of the proposal is not proper for inclusion in the ES.

Comment 10: Additional definitions and clarifications as described in this comment are needed and should be placed in the appropriate places in the ES.

Comment 11: These acreage figures need to be clarified and coordinated.

Comment 12: This comment should be complied with. Additional clarification on these points is required.

Comment 13: The reduction of the wild horse herd is and should continue to be a separate action and not considered in this ES. Some clarification is needed though, to the fact that the proposal was developed based on the assumption that the wild horse herd would be reduced in accordance with MFP decisions and that this reduction would occur prior to full implementation of the grazing management proposal.

Comment 14: This comment should be complied with by citing additional references which support the proposed systems. This is different from showing the criteria of rationale behind designing the proposal in the manner it was. The scientific basis behind the development of the proposed grazing systems should be cited. The proposed use is shown in terms of AUMs and this is accomplished in the previous mentioned table.

Comment 15: This comment should be complied with, except the productivity data is to be shown in the vegetative section of Chapter 2. (See Comment 2.) Specific comments on Chapter 2 were made in the Bureau review.

Comment 16: The Bureau comments on this section should be followed. Describe and quantify the future environmental conditions at the end of the selected time period. Impact analysis of these changes occurs under the no action alternative.

Comment 17: This comment is applicable and the relationship of the study should be re-examined.

Comment 18: This comment should be complied with and is the same as Bureau comments.

Comment 19: This comment is essentially the same as raised by Bureau reviewers. The question on the Nevada Range Policy has been raised before by Bureau personnel. It was also raised in the NRDC comments on the PDES. There should be some consideration given to separating out these two alternatives i.e.: discuss implementing the Nevada Range policy separately from analyzing continuing present management without implementing the Nevada Range Policy.

Comment 20: Bureau comments also dealt with this problem. Additional thought needs to be given to development of alternate management schemes and levels.

IN REPLY REFER T

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(N-940.1)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

NEVADA STATE OFFICE
Room 3008 Federal Building
300 Booth Street
Reno, Nevada 89509

MEMORANDUM

January 14, 1977

To: Chief, Division of Planning and Environmental Coordination

From: Chief, Division of Technical Services

Subject: ES Review of Tonopah Study Area

I want to thank you for the opportunity to review the draft of the ES for the Tonopah Study Area. The following is our comment on the statement:

We feel there is a real problem due to omission of one major contributor to the present ecosystem which has resulted in the present biomass in the study area. This contributor is fire, and any statement which treats fire as incompletely as this, does not fully analyze the impact of any action on the landscape.

Fire is one of the normal catastrophic events which has resulted in the vegetative cover presently occupying the study area. The area has been stocked with this vegetation due to its ability to survive the climate, soil conditions, natural catastrophic events such as fire, drought and geological upheavals. The actions of man have further modified these cover types. Again fire exclusion has created certain conditions which favored some plant and animal species over others. Both sagebrush and pinyon juniper are invaders under conditions of fire exclusion. This knowledge then impacts the proposed actions in chapter I, i.e.,3,160 acres are proposed for spraying in the sagebrush grass type. This will be treated with 24D - a chemical with known toxic residuals. The cost of this spraying is about $11.00/acre. Fire could possibly be used to treat this area at $1.50/acre.

The same section mentions drilling 36,000 acres. Yet just prior to this, we are excluding cats from spring developments. No mention is made of excluding cats from fire operations. This type of inconsistency detracts from the ES and opens us up to criticism from other agencies.

In chapter II, description of the environment does not discuss the nature role fire has made to the environment, or what effect the reduced occurrence of fire has had on the environment. During the past 10 years only 12 fires have occurred in the Tonopah Study Area. If this is less than the years previous, it would have a significant effect on the vegetation. If fire had a significant role, the evidence of this can be found by analyzing the tree scars and ground charcoal deposits. Irrespective of what is found, either fire or the lack of fire, has contributed significantly to the resulting biomass found in the area.

In II-4 the climate discussion indicates the normal existence of thunderstorms during July, August and September. This thunderstorm activity creates two conditions which should be noted in the ES. First the thunderstorms are a major fire ignition source. If we conclude at some point in time, vegetation prior to cattle introduction, was more dense, we can also conclude fire size was greater, and fire numbers were greater. The statement of II-7 indicates that runoff resulting from these storms does occur. The research has shown that in most range land types, the erosion resulting from the runoff over fire denuded land contributes more to the geophysical land features than does wind erosion. Again another circumstance where fire can not be ignored.

Belaboring the lack of fire and its effects on the present and proposed ecosystem in the Tonopah Study Area will not resolve anything. Certain things should be done to improve the quality of this ES. Some of these are:

1. A description of fire effects on the present environment.

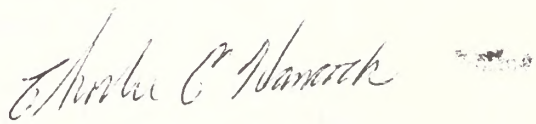
2. A discussion of fire effects in the proposed actions.

3. A determination of whether the use of fire as a tool can be substituted for spraying and chaining.

4. The inclusion of fire facilities as part of water developments to help defray the cost of these developments.

5. An input from fire in development of rest and deferred pasture systems to insure proper fuel break and fencing consideration.

Although we are unable to specifically assign personnel to develop the proper fire input in the Tonopah ES we will be happy to assist the developer, of this document to properly consider fire.



UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Toiyabe National Forest
111 No. Virginia St. - Room 601
Reno, Nevada 89501

8400

January 13, 1977

Mr. Ed Rowland, State Director
Bureau of Land Management
Federal Building, Room 3008
300 Booth Street
Reno, NV 89509

Dear Ed:

Thank you for the opportunity to review the preliminary draft environmental statement for grazing on the Tonopah Resource Area. Our comments cover only items which directly affect the adjacent lands of the Toiyabe National Forest. We would like to review and comment on the draft environmental statement when it is officially released. We hope the following comments will be helpful.

1. Section II - 53 - Water quality levels were established using a single sample taken in October 1976, and relating them to a specific set of standards. One sample taken during one of the lowest precipitation and runoff years of record is not an accurate measure of overall conditions. We believe more sophisticated data are needed to establish water quality levels.

2. Water Development (Several sections) - The need for filing for water rights with the State for water originating on National Forest lands was not recognized. The map shows proposed water developments on National Forest lands. Water cannot be used off National Forest land unless it meets requirements of State law.

3. Section II - 167 - Buffer zones one-half to one mile in width for recreation and esthetics is not always necessary on National Forest land. We suggest this be reworded to show that it applies only to National Resource lands. Also, will all these areas be withdrawn from mineral entry?

4. Section III - 33 - Management on National Forest lands will be the primary influence on water quality in streams to the point where they enter National Resource lands. The management proposals for National Resource lands will be the primary influence on water quality from the National Forest boundary downstream. We suggest rewording this section to clarify this relationship.

5. Section III - 35 - This section indicates that a unit fence is proposed in Peavine Creek. Since this area is closed to grazing and won't be opened, except for livestock trailing, we suggest it be deleted.

6. Section III - 36 - Is it correct that there will be a 25% increase in fecal streptococus, nitrates, and phosphates? This will occur only on National Resource lands and the small portion of National Forest lands that is to be managed by the BLM. Even then, this will occur only during the years grazed and will decrease during the years rested.

7. Section III - 56 - We question the proposal to graze pasture No. 4 of Darrough Hot Springs allotment due to its value for winter deer range. We have closed the adjacent National Forest to grazing to protect this winter deer range. Grazing this area will conflict with our plans unless the National Forest boundary is fenced. We don't think this is economical for the available AUM's.

8. Section III - 123 - The amount of fishery impacted should not include the miles in Peavine Creek since this area is closed to grazing.

9. Section III - 123 - Willow Creek contains no fishery and very little potential for developing one.

10. Section III - 128 - The statement on lethal water temperatures should be clarified to show that this occurs in Barley Creek only on National Resource lands.

11. Section III - 132 - Please remove the paragraph relating to Peavine Creek above the Forest boundary. This area is closed to grazing.

12. Section III - 145 - The proposal to fence Highway 6 from Saulsbury Wash to the east Forest boundary will have to be discussed further due to its adverse impact on wild horses in the area.

13. Section III - 190 - We are not sure the areas mentioned will be chained and seeded. Several alternate treatments are being considered and need further evaluation.

14. Section III - 196 - Do the costs shown in this table include any fences to be built cooperatively or wholly by the Forest Service or only those that will be wholly built by the BLM?

Your objective is to manage livestock intensively. We do not believe we can manage livestock intensively in most of the National Forest in this area because of the low productivity of the land and the tremendous cost of fencing. If the fencing is on our common boundary, we do not want to be committed without our being sure of the economic feasibility.

One last comment - The statement regarding the social-economic impacts of the proposal on livestock permittees should be strengthened. We feel that more detail on this subject is needed.

We hope these comments will be helpful to you and appreciate the opportunity to be involved.

Sincerely,

JOHN J. LAVIN
Forest Supervisor

MIKE O'CALLAGHAN
GOVERNOR

GLEN K. GRIFFITH
DIRECTOR

1100 VALLEY ROAD P.O. BOX 10678 RENO, NEVADA 89510 TELEPHONE (702) 784-6214

January 3, 1977

Mr. E. I. Rowland, Director
Bureau of Land Management
Room 3008 Federal Building
300 Booth Street
Reno, NV 89502

Dear Ed:

Thanks for the opportunity to review your rough draft of the Tonopah E.I.S. We have the following comments:

The N.R.D.C. court action directed the B.L.M. to determine the impacts of grazing on National Resource Lands under their administration in Nevada. The Tonopah E.I.S. is the first of eighteen proposed E.I.S.s to be written by B.L.M. for Nevada. At the time this E.I.S. was being written the so called Organic Act was passed by Congress. This Act recognized the judicious use of livestock grazing as an acceptable land use, but also directed the B.L.M. to manage the public lands and balanced it as they are utilized in the combination that best meets the needs of the people - recognizing all multiple uses.

In relating the two above actions, the B.L.M. had the opportunity to develop and recommend a management system that would meet the criteria of "multiple use", as well as satisfy the directives of the N.R.D.C. suit. Unforunately, the proposed management system was designed solely for intensive livestock management and other land use values have to conform to those constraints or fall out of the system. Since the E.I.S. will serve as the future management document relative to all values for the Tonopah Resource Area, if accepted, there is no alternative for the Nevada Fish and Game Department except to heartily condemn the proposal as being detrimental to wildlife and not meeting the test of the "Organic Act" definition of land management for multiple uses. The Department particularly objects to the fenced rotation systems of livestock management which can result in having massive impacts on wildlife movements and habitat. Some of these effects can be far reaching, even to the virtual elimination of some species from the environment. The emphasis that is being placed on an "improven" management system, in low precipitation - low response vegetational areas, is too great a gamble to take for the few advantages that may or may not materialize.

It is felt that it is time the B.L.M. designs a management system that is keyed to land capability and accommodates, inasmuch as possible, the best uses of the land involved. In this respect, when the best use of a parcel of land is determined to be livestock grazing, an intensive management system which includes rotation pastures, reseedings, and water developments, could be implemented. Conversely, when a parcel of land is best suited for wildlife use, fencing should be minimal or nonexistent. Key habitat components should be preserved for them, and competition with livestock nonexistent, or very minimal at best.

In 1966 Blaisdall reported that "Overoptimism concerning grazing capacity of rangelands has been an important factor in their deterioration." The approach that is being taken in the Tonopah E.I.S. is to try and increase grazing capacity (possibly overoptimistically) at the expense of other resource values, though the use of fenced livestock pastures in every allotment. The Nevada Department of Fish and Game cannot adequately manage wildlife populations on the basis of livestock allotment plans nor should wildlife be expected to conform to these artificial boundaries and barriers.

Although great pains are taken in the E.I.S. to explore the ramifications of the proposed system, and it is felt that the wildlife section was objectively written, wildlife obviously does not fare well. It is very difficult to accept the predicted benefits when, throughout the proposal it is shown that antelope and livestock will continue to compete on fall ranges, deer and livestock will [illegible] livestock will continue to compete on critical ranges, meadows and riparian habitats will continue to deteriorate, and long-term changes in forage will favor grasses and eliminate favored deer food species! The mitigation proposals seem meaningless and awkward in the face of the imponderable basic set of conflicts which the intensive rotation system created on top of problems which already existed.

Since the concept of the proposal is not acceptable to our Department in relation to providing adequate safeguards for the perpetuation of a viable wildlife resource, individual inadequacies, inaccuracies, or discrepancies will not be addressed.

The two alternatives to the proposed system were reviewed with interest and with the hopes that a more realistic management system would be described. The Minimal Investment Alternative, although rough in places (there is no mention of proper use factors, problems relating to developed livestock water

which can harbor wildlife and is turned off seasonally, etc) shows promise as being a far more realistic system than the proposal B.L.M. is advocating. It is felt that this alternative could be used as the basis for devising an acceptable management system that can meet the demands of the N.R.D.C. suit and other Multiple Use Disciplines.

Sincerely,

Glen K. Griffith
Director

/paj

DEPARTMENT OF FISH AND GAME
P.O. Box 10678, Reno, Nevada 89510

STATE OF NEVADA
DATE January 5, 1977

MEMORANDUM

TO: Glen

SUBJECT: BLM Tonopah Resource Area

FROM: Jack

We have reviewed the BLM Tonopah Resource Area Environmental Impact Statement and following are our comments.

Generally we feel that the document is completely unacceptable since it has slanted the entire program towards increasing livestock values to the detriment of all of the other resource area users.

We have listed specific instances by page that will substantiate this conclusion.

Page i

Statement defines this document as a "grazing management program". Why the emphasis on grazing and not considering it on a par with other public values and uses?

Also stated is that under the EIS goals, "free public access will be limited". That is a pretty strong statement and the writer should eat the whole sentence with hot sauce.

Page I-14

The only grazing systems evaluated are four modifications of rest-rotation.

Page I-15 (Table I-2 /a)

The quantity of water as well as quality of water should be maintained.

Page I-15

No springs which contain fish life shall be developed unless means have been incorporated to the satisfaction of the NDFG to protect the fishlife therein.

Page I-55

All aerial spraying shall be coordinated with State Agriculture and NDFG. Wide buffer strips shall be left between spray projects and permanent water.

DEPARTMENT OF FISH AND GAME
P.O. Box 10678, Reno, Nevada 89510

STATE OF NEVADA
DATE January 5, 1977

MEMORANDUM

TO:

SUBJECT: BLM Tonopah Resource Area

FROM:

Page I-58

Apparently wild horses are given a high priority in doleing out AUM's.

Page I-60

It would appear that livestock grazing along stream courses might be removed (during peak recreational season) for aesthetic purposes rather than habitat improvement and protection.

Page II-135 (Table II-25

Cursory scrutiny indicates that a few to several fishable waters may not be listed.

Page II-138

Two waters listed are unknown: Echo Canyon Reservoir-Reville allotment; Seylor Reservoir - San Antone allotment. Other waters such as Moores Station Reservoir were not included.

Page II-278

Why will BLM allow livestock use to continue over utilization of vegetation along streams and meadows? EIS very slanted toward future livestock use even in light of needed reductions.

Page II-282

This statement made - "Under present continued use, stream habitat conditions will continue to deteriorate". No alternatives or remedial actions suggestions. Almost get the feeling that no concern exists.

Page III-3

EIS obviously geared toward livestock - complete rest-rotation grazing systems. No areas to be completely rested (protected) other than those with greater than 50% slopes.

DEPARTMENT OF FISH AND GAME
P.O. BOX 10678, RENO, NEVADA 89510

STATE OF NEVADA

DATE January 5, 1977

MEMORANDUM

TO:

SUBJECT: BLM Tonopah Resource Area

FROM:

Page III-5

Assumptions - a statement should be added that indicates that efforts will include emphasis toward enhancement of fish and wildlife habitats.

Page III-73

When reducing land available to grazing, also reduce AUM's respectively, not simply increase concentration. An increase in concentration will mean more competion between livestock and wildlife.

Page III-123

Stream courses should be fenced (with water devices) to prevent stream bank deterioration and associated problems. Some 21 miles of stream listed on national resource lands. Some 949 miles of new fence proposed so lets just add another 42 miles.

Efforts should be made to enhance and restore current problem streams, not to allow and promote degradation. The EIS calls for "rest" for most streams in the resource area only once every four (4) years.

Page III-127

Why must we wait "several years" for stream banks to revegetate? Lets begin now.

Page V-15

EIS concerned with recreationists interfering with livestock operations.

No adverse impacts listed for fishlife - are there none?

Page VI-8

Hunting and fishing values will continue to increase, yet the EIS is not addressing this factor.

DEPARTMENT OF FISH AND GAME
P.O. Box 10678, Reno, Nevada 89510

STATE OF NEVADA
DATE January 5, 1977

MEMORANDUM

TO:

SUBJECT: BLM Tonopah Resource AReA

FROM:

Page VIII-1

Only three "alternatives" are listed:

1 - Reduce levels of grazing
2 - Current management
3 - Minimal investment - EIS

Many other alternatives (or degrees) should be documented and considered.

In my opinion, there was very little oppsetunity for input from non-livestock interests. All data used in preparing the draft EIS should be current and we have reason to believe the range condition data is out-of-date. The EIS lists only those alternatives which appear suitable to the livestock industry. Other uses of public domain lands are scarcely considered. I would like to know if they are coordinating with the U.S. Forest Service.

Paul V Lombard

AJD:vh

cc: BLM
Game Div.

DEPARTMENT OF FISH AND GAME
P.O. Box 10678, Reno, Nevada 89510

STATE OF NEVADA

DATE January 6, 1977

MEMORANDUM

TO: Director

SUBJECT: Statement of the Game Division concerning the Tonopah E.I.S.

FROM: Game Division

The N.R.D.C. court action directed the B.L.M. to determine the impacts of grazing on National Resource Lands under their administration in Nevada. The Tonopah E.I.S. is the first of eighteen proposed E.I.S.s to be written by B.L.M. for Nevada. At the time this E.I.S. was being written the so called Organic Act was passed by Congress. This Act recognized the judicious use of livestock grazing as an acceptable land use, but also directed the B.L.M. to manage the public lands and resources so they are utilized in the combination that best meets the needs of the people - recognizing all multiple uses.

In relating the two above actions, the B.L.M. had the opportunity to develop and recommend a management system that would meet the criteria of "multiple use", as well as satisfy the directives of the N.R.D.C. suit. Unforunately, the proposed management system was designed solely for intensive livestock management and other land use values have to conform to those constraints or fall out of the system. Since the E.I.S. will serve as the future management document relative to all values for the Tonopah Resource Area, if accepted, there is no alternative for the Nevada Fish and Game Department except to heartily condemn the proposal as being detrimental to wildlife and not meeting the test of the "Organic Act" definition of land management for multiple uses. The Department particularly objects to the fenced rotation systems of livestock management which can result in having massive impacts on wildlife movements and habitat. Some of these effects can be far reaching, even to the virtual elimination of some species from the environment. The emphasis that is being placed on an "unproven" management system, in low precipitation -low response vegetational areas, is too great a gamble to take for the few advantages that may or may not materialize.

It is felt that it is time the B.L.M. designs a management system that is keyed to land capability and accommodates, inasmuch as possible, the best uses of the land involved. In this respect, when the best use of a parcel of land is determined to be livestock grazing, an intensive management system which includes rotation pastures, reseedings, and water developments, could be implemented. Conversely, when a parcel of land is best suited for wildlife use, fencing should be minimal or nonexistent. Key habitat components should be preserved for them, and competition with livestock nonexistent, or very minimal at best.

In 1966 Blaisdall reported that "Overoptimism concerning grazing capacity of rangelands has been an important factor in their deterioration." The approach that is being taken in the Tonopah E.I.S. is to try and increase grazing capacity (possibly overoptimistically) at the expense of other resource values, though the use of fenced livestock pastures in every allotment. The Nevada Department of Fish and Game cannot adequately manage wildlife populations on the basis of livestock allotment plans nor should wildlife be expected to conform to these artificial boundaries and barriers.

Although great pains are taken in the E.I.S. to explore the ramifications of the proposed system, and it is felt that the wildlife section was objectively written, wildlife obviously does not fare well. It is very difficult to accept the predicted benefits when, throughout the proposal it is shown that antelope and livestock will continue to compete on fall ranges, deer and livestock will continue to compete on critical spring and winter ranges, bighorn sheep and livestock will continue to compete on critical ranges, meadows and riparian habitats will continue to deteriorate, and long-term changes in forage will favor grasses and eliminate favored deer food species! The mitigation proposals seem meaningless and awkward in the face of the imponderable basic set of conflicts which the intensive rotation system created on top of problems which already existed.

Since the concept of the proposal is not acceptable to our Department in relation to providing adequate safeguards for the perpetuation of a viable wildlife resource, individual inadequacies, inaccuracies, or discrepancies will not be addressed.

The two alternatives to the proposed system were reviewed with interest and with the hopes that a more realistic management system would be described. The Minimal Investment Alternative, although rough in places (there is no mention of proper use factors, problems relating to developed livestock water which can harbor wildlife and is turned off seasonally, etc) shows promise as being a far more realistic system than the proposal B.L.M. is advocating. It is felt that this alternative could be used as the basis for devising an acceptable management system that can meet the demands of the N.R.D.C. suit and other Multiple Use Disciplines.

Christensen/paj

Following is a transcription of handwritten comments submitted to the Tonopah Environmental Statement team on December 29, 1976, by Dr. Vernon E. Scheid, Professor of Mineral Economics, University of Nevada, Reno. This transcription has not been reviewed by the author. The original handwritten copy of the comments is available.

Review of Prelim Draft - Tonopah Study
Area - Grazing Environ Statement

Dec. 29, 1976 - By Vernon E. Scheid

Page
ii - State Agencies - Why not the Nev. Bureau of Mines & Geology?

II-297 ¶ 4 - at end - of 2nd sentence "and vice versus"--

III-177 - If Paleontology is considered a "Cultural Resource" - why not all minerals & rocks for Rockhound purposes? or is this Recreational? The discussion on p. 177 - concerns only vertebrate bones! - why not also invertebrates?

III-189 - OK --

Appendix

I Do not agree with your scale - ? -- Snow is in sharp contrast to Green trees - but to most people it is beautiful & not distracting!

J --J - 4 -- #1 Why (vis a vis) -- poor or wrong use! --

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WESTERN REGION

Renewable Resources Center
University of Nevada
920 Valley Road
Reno, Nevada 89512

December 29, 1976

Mr. E. I. Rowland
State Director, Nevada
Bureau of Land Management, USDI
300 Booth Street
Reno, NV 89509

Dear Ed:

I spent most of a day reading the Tonopah ES. It would have been impossible to read the entire document, so I concentrated on certain chapters and certain parts of chapters as will be indicated by my comments.

The basis of the statement is to evaluate the impacts of the proposed action. Therefore the proposed action must be clearly defined. This now is not the case. As presented, the descriptions of the various grazing systems drag on for many pages and are difficult to understand. My first suggestion is to diagram each system presented, as done for typical examples in Chapter 1. By diagrams, the reader can follow along with the description of the rest, graze, defer, etc. treatments.

As now presented, there seems to be no logic as to why various systems were used in certain allotments and not in others. The range specialist on the team said they were in the AMP's but I could not find a good explanation there either. In any case, most of those reading the draft and final ES will not have access to or time to read all the AMP's. Therefore, my second suggestion is to include a statement with each discussion of the grazing system as to why this system was preferable to any other system. This could relate to species, season of use, etc., but should be specific enough to allow a judgement on the reasons for the selection of a specific system for a specific area.

A fourth general suggestion is that each discussion be followed by a summary such as is the case with "Cultural Resources". This will provide the reader with a concise statement of the subject matter.

A fifth general suggestion is that the study methods for all resources be given in detail so all can evaluate whether the proposed action is

adequately monitored to pick up positive or negative impacts.

Following are some specific comments:

I-18. What is the basis of the statement for increasing vegetation density from 1 to 10%, for increasing calf crop 15%, and increasing weaning weights by 25 lb. in 15 years? How will this be determined?

I-19. How will you maintain 20% Artr cover in sage grouse nesting areas and 15% in other habitat? In the Tonopah unit as in the rest of the State, succulent meadow vegetation is the limiting factor for sage grouse not the Artr. Without fencing it will be impossible to obtain 50% utilization on riparian and meadow vegetation. I suggest you consider fencing these critical habitats even in the proposed action. I think even Hormay agrees that management systems will not protect these areas from abuse.

I-20, 21, 23, 25, and 26. What are the bases for the AUM increase, for increasing vegetation density from 5 to 10%, for increasing weaning weights by 75 lbs., for increasing litter from 2 to 10%, for increasing litter from 25 to 40%, and for decreasing iris.

I-29. Do the principles of rest-rotation management include "complete defoliation?" There are many severe impacts associated with such extreme grazing intensity.

II-17. Need a key for four-letter symbols.

II-68. Under big sagebrush, what is "favorable" precipitation?

II-72. and elsewhere. In most cases, data are considered plural. In any case, be consistent.

II-72. Relation between SSF and ecological range condition is not clear.

II-72. Need some indication of <u>ecological</u> range condition because this indicates the resource health, not condition for some commodity use.

II-79. A summary of range condition and trend was written by the FS. These are unpublished data but should be used to at least partially fill the data void you have. A tough question to answer will be how can you make a statement on range condition without implementation of the proposed action without any trend data.

II-121. Need references on sage grouse habitat. I suggest Oakleaf and Savage.

II-271. No. 2. Why would there be a continued decline in vegetation response with a 2-month rest period each year?

II-275. Last paragraph. 1976 situation not saturation.

III-5. Assumption 3. Why is 15 years such a magic time base?

Assumption 7. What basis do you have for the utilization in unused or seldom used areas? In my study areas, cows still do not graze some areas less than 1 mile from water in gentle topography.

III-72. There is not compaction on all soils at all times from livestock grazing.

III-14. We don't really know about relations between livestock concentration and erosion. This will depend upon soil type, slope, cover, etc.

III-15. Does seeding really destroy microorganism community?

III-16. Will ground cover really increase enough to change runoff by 10%?

III-42. It is supposition that an increase in cow density means grazing of new areas. Sometimes yes, sometimes no.

III-44. Seed trampling technique to plant seed and help in establishment of seedlings has not been verified.

III-44. Why not graze from 6/1 to 8/5 instead of 7/1 to 8/5 since after all the rest and deferment plants should be in good vigor.

III-48. I don't think we should accept all the negative impacts on streamside vegetation when these are areas so valuable for wildlife.

III-52. Need references on utilization of winter fat. Suggest Kinsinger and Eckert. What is moderate to <u>slow</u> vigor?

III-64. Spraying may not reduce forbs. A lot depends on formulation, rate, and timing. I think many of us have wasted our time and experience if we can't pick out the nonresponsive sites before 8 years.

III-65. Don't use drill rows. Unnatural is a poor choice of words. Introduce of exotic would be better. What is vegetative to grass type?

III-117. In the discussion of impacts on wildlife on grazed areas the ES suggest that animals may move to ungrazed areas. However, in Chapters I and VI the ES worries about impact of land treatments on wildlife. Certainly it would be easier for wildlife to move from a several thousand-acre land treatment area than from a grazed pasture of several tens-of-thousands acres.

III-117. This is a constant question. Do we maintain a deteriorated range condition for a seral wildlife species, or do we reduce the shrubs and trees to their density on good or excellent condition range and manage for a mix of climax and seral wildlife species?

III-144. Which poisonous plants become more palatable after 2,4-D treatment?

Chapters V and VI. We don't want to eradicate brush, just reduce it to potential density on good or excellent range.

Chapter IV. Mitigating measure 44. Why would seedings be treated with toxic chemical repellents anyway?

Measure 46. What is a hand vegetation seeding method?

Chapter VIII-I. Why did none of the allotments meet the criteria for custodial management?

Chapter VIII-4. If trend is unknown, how can an analysis of "no action" be made? Also, if trend in relation to the proposal can't be predicted accurately, perhaps the cost of the proposed action is too much when compared with "no action." However, riparian vegetation and other critical wildlife habitat should be fenced and HMP written and initiated.

Ed, I would be happy to discuss any of these points with the team if they so wish.

Sincerely,

Richard E. Eckert, Jr.
Range Scientist

Following is a transcription of handwritten comments submitted to the Tonopah Environmental Statement team on January 4, 1977, by Dr. Paul T. Tueller, Professor of Range Ecology, University of Nevada, Reno. This transcription has not been reviewed by the author. The original handwritten copy of the comments is available.

Tueller 1

Comments EIS Tonopah Study Area - P. Tueller

1. As a practicing professional ecologist the term site-specific somehow does not seem proper since the "site" covers 4.5 million acres. I suppose that terminology is well ingrained however. We are talking about a large area of similar climate with many soils and plant communities and sites in the central Great Basin of the United States.

2.I-3. 4.4 million acres under AMPs. One immediately wonders where or at what point HMPs are included or superimposed or whatever. In my opinion the AMPs should carefully consider and include the wildlife considerations. Perhaps this is done later to everyones satisfaction.

I-62 Two HMPs the habitat should, in my opinion, be an integral part of the each AMP.

II-24 Perhaps references such as Fenneman - Physiography of the Western U. S. or Hunt - Physiography of U. S. These are excellent references.

I'm wondering where the Literature Cited is located.

II-33 -- to pinyon-juniper in the Mountain Ranges. Also the mountain ranges include Mountain mahogany, Bristlecone pine (Pinus longaeua), low sagebrush and in some cases

Tueller 2

a near alpine-trunda like vegetation. See Tueller Mentzelia 1975 Issue - the Natural Vegetation of Nevada. Vol. 1

II-61. Big sage is an incorrect common name. It should read big sagebrush.
Black sagebrush also.

II-60. I find it very difficult to believe that Atca exceeds Atco by composition except in extremely limited areas. Atco occurs in large pure stands. Atca is very seldom found in pure stands, i.e., with Atca as the dominant shrub in the vegetation overstory. I'm refering here to the 16,442 acres of "Short Grass". I don't find that to be a very suitable term.

61,978 acres of Atca dominant vegetation 43%. This is much more than I expected. I stand corrected

II-67. Small point. Galleta stands alone not Galleta grass.

II-68 low sagebrush

II-72. Intermediate desirable?
It should be pointed out that the range condition classes good, fair, poor, etc. are completely arbitrary. If one were to follow and array vegetation changes over say a 20-year period there would be no natural breaks or hiati in the data. Any breaks in the array of vegetation parameters would probably be random.

II-82 check spelling on Astragalus.

II-88 ~~91~~ 2 1 3 vegetation types is a more commonly accepted term rather than vegetal types.

II 274. Vegetation changes will not go down under continuous grazing if a judicious stocking rate is used.

~~91~~ 3 under vegetation. I simply don't believe the vegetation outside AMPs would deteriorate as a generality. Only if the site is overgrazed. In other words intensive grazing management (i.e. rest-rotation or other grazing management systems) is not the only answer. Proper stocking would in some places help.

II-278. I thought that a HMP had been established on Morey Bench and that the established fence preclude any significant deer-livestock competition.

What is the level of deer-livestock competition?

II-294. The red meat study considers the entire U. S. and does not propose a 40-99 percent increase on all lands. The statement here is out of context.

Tueller 4

III-38. Proper stocking with some assistance in distribution (water development primarily) and turn-out date can, on many sites provide proper use and a reduction of range deterioration without the benefit of an intensive grazing management system. Intensive grazing management systems certainly have their place. I feel that overemphasis is given to their implementation.

Tueller 5

III-66. Perhaps you should refer to the "Contributions to a Nevada Flora" and the old Flora of Utah and Nevada by Ivan Tidestrom.

III-102 Previous grazing pressure must have altered the plant communities previously with respect to small mammal populations. Therefore, it dosen't seem possible that continued grazing could reduce small mammal populations 25% in grassland types and 10% in shrub-forested areas. Perhaps you are just refering to the U.S.F.& W. study but that is not clear.

III-123 ¶ 4. It dosen't seem correct to say that the proposed action would be impacted by livestock grazing. Either it will <u>continue to be</u> impacted or improved under better management.

* I feel the tendency throughout to refer to impacts that will occur (or it is implied that they will occur) when in fact it has been occurring all along at some level or other.

#5 Another reason for judicious grazing (appropriate turn-out dates and stocking rates) on larger pastures especially with extra water sources made available away from the stream.

III-149 The most important factor was not considered in this list. And that is how people or various segments of the population perceive a visual impact or lack of visual impact. Some perceive, for example, that mining "scars" are a masculine symbol of man's ingenuity at wrestling valuable resources from the landscape. The important point is that these people do not perceive as such being a visual negative impact but a positive one.

III-203 Since mule deer are the bread-and-butter species, and since it was indicated earlier in the EIS that there would be a long-term subtle negative affect on mule deer then it is difficult to visualize the increased value - Unless the increased value is based on more unsuccessful hunters trying for the fewer deer. There is little good data on changes in populations of mule deer anywhere in the state. Figures on this page should be tempered with numerous disclaimers.

IV-3 2. Locations of a few groups of plants might be fenced if you know about them. Many other specimens occurring at random certainly could not all be fenced.

IV-17 Impact #3. This sounds relatively plausible. However, is there any data available indicating by how much the temperature is raised. It seems this would most likely happen in open areas with little gradient. These areas may already have little "shade" vegetation.

IV-25 Does this mean the BLM will be involved in monitoring wildlife populations?

V-5 ¶ 2 However, several years of study on animal condition (some on Morey Bench) failed to find animals in extremely poor nutrition in the winter. It is doubtful that there has been or will be much winter mortality of mule deer based on poor nutrition.

VIII-1 item #1 Shouldn't it read (no change in action) rather than (no action)?

VIII-4 Under soils. "Stream margins, etc. continue to be overutilized". Does this imply that the fish have all died from increases in temperature prior to implementation of the grazing systems.

F-2 the Amelanchur utahensis is probably A. pallida. See Munz and Keck. Euratva lascta is now Ceratoides lanata

Thanks of the opportunity to review the preliminary draft. As it stands it is a much better document than the Challis report. The EIS should be a document based on the best available information. It appears that it will be. Your willingness to either say that there is no data available or that the comments or decisions are made based on your professional experience is gratifying.

/s/ Paul T. Tueller

COOPERATIVE EXTENSION SERVICE

MAX C. FLEISCHMANN COLLEGE OF AGRICULTURE

UNIVERSITY OF NEVADA RENO 89507

DIVISION OF RENEWABLE NATURAL RESOURCES

January 5, 1977

Ed Rowland, State Director
Bureau of Land Management
Federal Building
300 Booth Street
Reno, NV 89509

Dear Ed:

I sincerely appreciate the opportunity to review the Tonopah grazing environmental statement in the preliminary draft. I believe your efforts to get outside input at this stage are a step in the right direction and can be very beneficial in reducing unnecessary criticism and conflict at later EIS stages.

I have spent four days in reviewing the materials at your office and several more days since in developing the attached comments from my notes. I hope these will be useful to you and your EIS team and that you will feel free to call me should additional explanation be desired.

Your November 24 letter indicates to me that your major purpose in inviting this preliminary review is to fill "data gaps" with new or overlooked information that would strengthen the statement and support (at least generally) the proposal. I realize that I have provided very little "new information" to fill the many obvious gaps. In my opinion, there simply is not enough information presently available to support the kinds of actions you propose.

I believe a supportable proposal would have to concentrate on monitoring programs and trial grazing methods necessary for development of an effective long term range management program. It would also include those specific supportable actions and projects needed now to gain control of livestock, mitigate clearly identified problems and/or implement or begin implementation of some MFP decisions. I realize this approach, and some of my other recommendations, may be beyond your authority to carry out.

Because of the length, the detail and the organization of the draft (and my attached comments) it is difficult to come up with a summary. However, here is an attempt:

The Proposed Action

My major general criticism of the proposal has already been stated above. In addition, I would make a strong objection to the statement early in Chapter VI: "During the interim, the time of which would vary for each allotment, the Nevada Range Policy would be in effect." As I read this, it is in absolute variance with statements made on several occasions by the State Director, District Manager and others and would, in my opinion, be a very poor range management decision.

I question whether enough information is provided in Chapter I for readers who don't have access to the AMP's (most readers of the draft) to understand and evaluate the scope or detail of the proposal. Although an explanation is provided for the four general grazing systems proposed, the definitions are fuzzy and there is nothing to indicate why a particular system was selected for a particular allotment. There is also no rationale provided for the proposed implementation schedule. I seriously question the decision to hold all land treatment projects until the final year and I fail to see where project priorities are based either on the most critical situations or where effective management can be most quickly implemented.

No cost/benefit data could be found either for the proposal or any of the alternatives. I do not believe it is sound or wise (1) to arbitrarily establish specific stocking rates for each allotment several years before the grazing system can possibly be implemented or (2) to reserve AUM's for wild horses only in areas determined suitable for cattle if, as stated in the PDES, wild horses travel 8-10 miles to water and often concentrate on higher, steeper slopes than those used by cattle.

The Present Environment (Chapter II)

There are continued references made to "continually deteriorating conditions" and to major reductions in wildlife numbers since the 1940's. These are extremely questionable and misleading presumptions. Data has not been presented (and is probably not available) to support a finding of general present deteriorating conditions. Also, I know of no data to support major wildlife population decreases since the 1940's except for mule deer and this decline is certainly not peculiar to the Tonopah Area or even to lands managed by BLM.

I was disappointed that local information was not developed for the agriculture industry (rather than generalized regional data) and that it was not made absolutely clear that agriculture in the Tonopah area is (and probably must be) dependent on federal lands. I was even more disappointed in the presentation on range trend. Data from the 1937 exclosures was presented orally and in a written report to you in April, 1976. (Also, the work was not done "under Contract" to BLM. Rather, BLM was one of several contributing cooperators in this phase of a long term study.) It is true that all the data has not yet been published. However, Ralph Holmgren has provided the information he thought would be useful to you, and has been available (as have I) to provide additional data and information. Not only has this information been rejected but work done by Tueller in Hot Creek and by your own personnel (mentioned in a later chapter) has not been used.

Comments on Impacts of Livestock Grazing

Here there is a bad misconception, particularly in wildlife sections, that use by livestock in the grazed pastures of grazing systems will be heavier than present use. It simply cannot be so under the proposal. The BLM range condition methodology is also misleading and lacks data on site specific ecological dynamics and potential. In addition, there appears to be a very inadequate treatment in the sections on Livestock Grazing (3 pages), Agriculture (no note that agriculture will be impacted by impacts on livestock management) and Social/Economics (does not speak to factors discussed in previous chapters) and on the methodology for range vegetative and livestock management monitoring (not even mentioned in Monitoring Programs section of Chapter IV).

Mitigations

There is no attempt made to estimate costs of the proposed mitigating measures. But the most important criticism of this section (and perhaps the whole PDES) is this early statement: "BLM cannot mitigate adverse economic impacts occurring to individual operators...BLM's charge is limited to ministerial actions dealing with grazing management functions relating to land conditions" (IV-1). Surely your EIS Team does not believe or support this statement!

Alternatives

The alternatives considered are not described or evaluated in the detail of the proposal so a fair comparison is impossible. The rejected "no grazing" alternative certainly should be discussed in more detail since two specific areas have been set aside, substantially more "unsuitable" land has been effectively removed from consideration because of water, slope and soil factors and a positive decision has been made in the MFP that the balance of the area is suitable (and publicly desireable under multiple use policy) for managed livestock grazing. I would also question including the two months off range policy in both suggested alternatives especially since the Future Environments Section of Chapter II indicates little benefit from this practice. The final statement suggesting some combination of the proposal with suggested alternatives is certainly in order at this point. But, the following part of the statement, that trade-offs must meet designated objectives, raises more questions since there has been very little discussion or evaluation of objectives in the PDES. I certainly would like to have seen an alternative considered that generally follows the concept in the fourth paragraph of this letter.

General Comments on Process and Approach

1) The first page of Chapter 1 includes this statement: "The present grazing management program was established in January, 1976, by implementing the Nevada Range Policy." If you are at all sensitive to public relations, this is a poor way to start off. But more important than this, I think it is a poor base to start from since the policy certainly has not been implemented

much less been in operation long enough to evaluate in terms of environmental impacts. It would be better, if the "Nevada Range Policy" were one alternative management scheme to analyze and that the past several years actual management be considered present management.

2) Authors should be listed. How else can a reader evaluate subjective and judgemental statements?

3) The new "Organic Act" is discussed only briefly and then it is hidden back in page II-270. Some discussions are inaccurate (I think) or misleading because they don't appear to recognize this new legislation.

4) I could find only onemention of "red meat" (II-294) as a value, let alone a public value from the federal lands. This PDES reads (to me) like the writers take the view that livestock grazing is a special interest use not to be tolerated on public lands if, in any way, it conflicts with any public use or value. I don't believe this is in keeping with the multiple-use philosophy nor is it right to ascribe all benefits of livestock grazing to the livestock owner. Livestock grazing has public values locally, regionally, nationally and internationally and there is considerable data indicating that these values are becoming of increasing importance.

5) I would call your attention to excerpts from CEQ Chairman Russell Peterson's Memorandum for Heads of Agencies dated 2/10/76. First "...situations continue to arise in which the impact statement process has been more an appendage to or justification for decisions already made than an aid to decision making." I cannot believe that the CEQ would not consider this statement as a case in point. I won't belabor this point further here since I have previously made a number of comments and recommendations in this regard. The second point: "Frequently, EIS's follow lengthy, detailed outlines in order to assure that at least some treatment, however brief, is given to every subject conceivably relevant..." (and, later) ..."This section "(NEPA 1500 . 8(b)) states further that each of the five points required by NEPA in an EIS'...need not always occupy a distinct section'... ". I believe the grazing EIS's would be more readable, less repetitious, and a better evaluation of the proposal vs. alternatives could be made if the alternatives were listed and described in (or immediately following) Chapter I. Then, each succeeding chapter could speak to the proposal and to the alternatives. Other improvements could also be made if the writers were allowed greater flexibility in organizing the material.

Again, thank you for the opportunity to review the preliminary draft. I hope my comments will be useful and will be taken in the constructive spirit intended.

Sincerely,

John L. Artz
Extension Range Specialist

JLA/bjs
Enc.

TONOPAH PRELIMINARY DRAFT ENVIRONMENTAL STATEMENT

DETAILED COMMENTS

John L. Artz, Extension Range Specialist

University of Nevada Reno, 12/27-30/76

(* denotes items considered to be major concerns which are discussed in more dtail at some point.)

1) page i Summary of Environmental Impacts, paragraph 2

a) Second sentence: "Free public access would be limited". This gives connotation that public would have to pay for use of some areas or that use would be restricted by policy. Actually, I think you mean that the proposed fences would impede public access to and travel across some areas of public land. This should be clarified.

b) Third sentence: "Spring grazing would be harmful to grazing". This is misleading since a major objective of the proposal is to mitigate the present undesirable grazing practice of using many parts of the area every spring.

c) Fourth sentence: The meaning is not clear. I think you are trying to say: The benefits to vegetation expected from implementation of the grazing system would not be fully realized because although livestock use could be restricted in pastures, wild horses and wildlife use would continue.

d) Fifth and Sixth sentences: "...grazing systems will require operators to stay within livestock grazing capacities...". Again, this is misleading. "Grazing systems" don't require it. Present law and regulation require it. The requirement is not new. Maybe strict enforcement as a part of the proposal is.

2) pg ii Listing of organizations who will be asked to comment. Those are all State, federal and local governmental agencies. Why not include key individuals and interest organizations, especially those who have participated and shown interest to this point in the process?

CHAPTER I - DESCRIPTION OF PROPOSAL

* 3) pg I-2 Paragrah 3. "The present grazing management program in Nevada was established in January, 1976 by implementing the Nevada Range Policy." At best the above statement is misleading and argumentative. I feel strongly that the EIS should "take off" from the BLM program which has been developing over the past years rather than from a controversial policy statement less than a year old, not fully understood, not yet implemented and certainly not field tested. There is need for present situation base line from which to work and the January, 1976 "program" certainly cannot provide this at present. This whole section needs major overhaul to provide an adequate starting point.

) pg I-3 1) You mention the 32,480 acres around Morey Peak where livestock grazing will be excluded but not the areas where forage for livestock has not been included because of slope, distance from water, and soil conditions. Couldn't this be tabulated and included. My point here is that the "no grazing" alternative should be addressed more fully both by (1) identify areas where it has been determined there will be no livestock grazing and (2) by explaining why "no grazing" was rejected for the balance, i.e., because livestock grazing is an important public value that can be provided (with proper management) within the multiple-use/sustained yield policy.

pg I-3 2) Mention of 4 different grazing systems. These are not well defined or compared and I find nowhere an explanation of why one system was selected for one allotment, another system for the next allotment (also applies to I-29-37).

) pg I-10 "Specifically, the purpose of the proposed action is to provide...AUM's for livestock...wildlife... and wild horses..." Is this really the purpose? Or is it to bring the range into satisfactory condition for sustained multiple public uses (or something more like this).

pg I-12 Mentions possible changes to be made in systems based on evaluation: modify system, change amount of use, change season of use. There are other things that should be mentioned and considered, e.g., additional range improvements, vegetative manipulation, riding, herding, salting, change class of animal, etc.

) pg I-14 Indicates economic analysis will not be included in EIS, only in individual AMP's. If present economic analyses are to remain as part of AMP's certainly they should be subject to analysis, review and comment in the EIS.

pg I-17 Table I-2 (continuing through several pages)
Some quantified objectives probably impossible to meet, e.g., "increase plant density from 1% to 10%" (Hot Creek), "increase weaner weight by 75 pounds" (Hunts Canyon, a winter range where weaner weight primarily dependent on National Forest summer range), "reduce willow utilization by 25% by wildlife" (Ione).

) pg I-29 See comment for pg I-3. Needs a lot of editing and clarifying.

1) pg I-35 AMP's devised not to exceed carrying capacity in each pasture. Thus a reduction (averaging 17.2% beyond the MFP reduction averaging 20.8%) is made to the amount not used in rest pasture. I doubt that this second reduction is necessary and there will be sufficient time before actual implementation to determine whether it will be. Therefore, for several reasons I would urge that this be written in a much less positive way, both here and in Table I-4 (p. I-37). You might say "Initial stocking rates at the time of grazing system implementation will be designed not to over utilize the pastures to be grazed. Therefore, a further reduction. perhaps by the amount not used in the rest pasture, may be required at that time."

12) pg I-39-43

Range Improvement Implementation Schedule (including Table I-5)

1. Plans call for all vegetative manipulation in the final year of the 8 year plan. This does not make good sense to me for several reasons: (1) Benefits will not be derived for at least ten years, (2) you won't be able to fit them in for treatment with the grazing system schedule, (3) you won't have the advantage of improving methods based on the first projects attempted, (4)you're gambling all on a favorable condition in a single year. Certainly at least part of the Stone Cabin revegetation should be done very early in the schedule.

) pg I-39-43

2. You plan all the highway fences in one or a few years. It is doubtful to me that the Nevada Highway Department will agree to such a schedule and I think you are very wrong in assuming (you have not contacted them, according to a statement in PDES - see A I-63) they would. I think the 8 year schedule is a good target but probably impossible from a realistic standpoint. Therefore, I think priorities should be given, when possible, to projects that are within BLM control, and to allotments where all projects can be implemented and thus the system. In this way, we can begin as quickly as possible to evaluate the working system and adjust those that follow. Priority should also be given to those projects which will allow at least partial implementation of the proposed or an interim system.

4) pg I-45 Statement made that water development will be designed for May through October use except yearlong in wild horse use areas. Why only May through October? Many systems provide for livestock use November through April. What about wildlife? This just doesn't make sense to me.

5) pg I-46, 47

Fence specifications. Any consideration given to "suspension fences"? These would be cheaper than standard fences and <u>might</u> have some distinct advantages in wildlife and wild horse areas.

) pg I-54 Discussion of land treatment. Nothing is stated here about how sites were selected or why the specific treatment is proposed. This is important.

) pg I-57,58

Interrelationships - refers to MFP for land use decisions. I think the DES should at least contain a summary of the MFP decisions and the EIS Team and later readers should make some evaluation of these decisions. It does not seem right that the PDES or later statements "brush off" a decisions which may be environmentally subject to question by simpling stating that "the decision was made in the MFP. For further information go to Battle Mountain and read the MFP."

) pg I-60 "Where visual aesthetics along streams are not improved by the AMP, livestock grazing would be deferred until after the peak recreation season." I think this is an impractical, unrealistic, overgeneralized solution.

6) pg I-63 "Tonopah AMP's not dependent on non-federal lands, so were not closely coordinated with SCS ranch plans" (approx. quote). If you are working from a new policy requiring two months use during the critical growing season off the federal lands, I don't see how you can make the above statement.

CHAPTER II - DESCRIPTION OF THE ENVIRONMENT

0) pg II-5 Table II-1 Precipitation by Allotments - This is very misleading and unless better data can be secured, the Table should be eliminated. For example, 14" precip. maybe correct for Hunts Canyon Guard Station but it certainly is about twice too much for most of the Hunts Canyon Allotment. Table II-3 is better.

1) pg II-7 "Winter and spring precipitation are most beneficial" - This is misleading since many of the plant communities in the Tonopah RA are strongly influenced by the summer rainfall patterns of the southwest. It is a transition area and this should be made clear in the statement to all readers. Summer rainfall may be erratic, inefficient, etc. but it is an important management consideration.

2) pg II 14-19

Good information (apparently) on temperatures, growing seasons, drouth, wind, etc., but I don't find anywhere in the statement where this information is related to management decisions.

3) pg II-33 Table II (or D?)-4 present and future sediment yield with and without proposed action, but only one figure for each soil group is presented in the Table.

4) pg II-42 Table II-10 Estimated Stream Flows - this table is misleading because it includes a number of streams outside of the Tonopah RA (Reese River, Fish Creek) and does not list some inside (Barley Cr., Hunts Canyon). Same comment for following water data tables.

5) pg II-53-58

Discusses water quality study. Since quality apparently quite satisfactory, other than coliform, it would appear that these five pages could be reduced to less than one.

6) pg II-58 Beginning of vegetative type tables. Species symbols are used but nowhere can I find a key to these symbols or an explanation. I would not agree with your calling Hija dominated areas "Shortgrass" or Dist dominated areas "Sod Grass". I don't like the use of Perennial Forbs or Annual Forbs or Rabbitbrush as a type (they are successional stages) or of the Bunchgrass Type to denote crested wheatgrass seedings. This whole presentation should be worked over by some synecologists and range specialists.

7) pg II-67 Here starts a four page narrative description of vegetative types which adds very little to the preceding nine pages of tables.

) pg II-72 I don't like your definition of Range Condition unless it is identified as a BLM working definition, and unless some standards are established for each vegetative type rated. Without, at least, this explanation it is misleading because it can indicate a range is in poor condition where in reality it is only in that condition class for the particular species of animal the BLM is trying to manage for. Otherwise it may be in good condition and the BLM's proposals for management and improvement may have little to do with (or may even be negative to) the overall "health of the range". The narrative does go on to discuss "ecological range condition" but the discussion is confusing and I'm not sure I understand or agree with it. For example, what does this mean: "From this data it is assumed that 14% of the area is below moderate or medium ecological condition"?

0) pg II-73 Table II-19 - Vegetative, Watershed and Range Condition by Allotment - Very difficult to understand and interpret. On what basis do you rate condition for cattle differently than horses? If because horses will use areas steeper and farther from water than cattle, you haven't been consistent with the AUM allocation process

1) pg II-79 Reference is made to the trend study plots established in 1937 by the Intermountain Station, indicating BLM contracted for data from these in 1975 but "to date the report is not published nor made available for use." This is incorrect. The BLM did not "contract" for the study. They did contribute $1500 (of an agreed to $3000) towards a cooperative project involving at least six agencies during the summer of 1975 to get current measurements done. The total cost of this effort was in excess of $8000. It was agreed when the project was initiated that a preliminary report on trend since 1937 would be presented within a few months after field work was completed and that publication by the Intermountain Station on the entire study would be completed as soon thereafter as possible. BLM made no contribution towards or entered no "contract" for the publication. The preliminary study was presented in April 1976. BLM was in attendance and received copies. At that time and in subsequent communications, the responsible author, Ralph Holmgren, stated that the preliminary was essentially what would be in the final publication. Data from the Warm Springs plots in the Tonopah Resource Area plus several nearby in White Pine County do provide useful trend information and should be used in this environmental analysis. If additional copies of the preliminary reports are needed, I can supply them and I would be happy to help further with explanation and interpretations. My last word from Holmgren was that his work would hopefully go for publication in January.

Also, nothing is mentioned about Tueller's research for AEC in Hot Creek Valley on his work in Hilaria. These publications have been given to BLM and he is certainly available to provide further unpublished data or consultation if desired.

2) pg II-88 Second paragraph speaks of deterioration of communities and suggests that a "near climax" community is always best for wildlife. This just isn't so and should be worked over.

3) pg II-94 Mentions bitterbrush and mountain mahogany "and other browse" as important winter-spring browse. How about adding sagebrush? Wouldn't fall-winter be better than "winter-spring"?

) pg II-95 "Major reduction in big game from 1940's to present...reservation of carrying capacity will increase to about one-half previous peak numbers." Has there been major reduction in antelope and big horns since 1940's? Wouldn't "since mid-50's" be more accurate for deer? Wouldn't it be more informative to have said "major reductions in deer numbers throughout the western states..."? The reader should not get the impression that this is a situation peculiar to the Tonopah area, that failure to reserve carrying capacity for wildlife here or elsewhere has been established as a major cause for decreased numbers, or that the new reservations of carrying capacity proposed will automatically bring about increased big game populations. Do we even know with reasonable accuracy "previous peak numbers" or when they occurred? This part is misleading and doesn't "jibe" well with data on pp II-96 and 97.

) pg II-96 Notes past overuse especially evident in headwaters of Reese, Twin Rivers, "Clover Creek" (Cloverdale?) and Peavine Creek. These headwaters are all on National Forest. Should not indict past management of BLM lands for this.

6) pg II-98 Overall decline "by as much as 95% in some areas". These areas should be identified so management can be directed and evaluated site specifically. "...deer herds have suffered major reductions from peak populations of 40's to all time low of 60's". Are the 60's actually "all time low"? Can this be supported? Weren't peak populations in 50's? Again, this description indicates this is a special situation in Tonopah area when in reality it is west wide.
Note: This whole section (pp 93-109) is repetitious and poorly organized. A good editing job could reduce length and say it more clearly and more accurately.

7) pg II-109 "...assumed that antelope were plentiful in historic times...downward trend was continual...until recently". What is the basis for the assumption? I don't get this impression from old timers in the area. Certainly, if use patterns are related to water availability, there is more available use areas now than 20-50 or even 100 years ago. This is a poor section. It may be an acceptable general statement for antelope but it certainly doesn't indicate any knowledge of specific situations on the Tonopah area.

8) pg II-111 Section on big horn does not adequately separate National Forest herds from BLM and gives a more unfavorable view than necessary since, as I read it closely, big horns are apparently doing pretty well on BLM lands but not so good on the National Forest. Like the previous section, this could be cut and edited considerably. For example, three paragraphs on lung worm probably could be reduced to a sentence.

9) pg II-117 "overall cover reduction associated with present overgrazing would be delitorious to cottontail habitat". Writer assumes "present overgrazing". Can this be substantiated overall? I have seen no utilization studies. Is there any data for this area or elsewhere that relates cottontail populations with degree of utilization by livestock or "overgrazing"?

in

pg II-120 "habitat deterioration beginning/historic times and continuing to the present." This kind of statement is made in many places and I think it is misleading. What do you mean by "historic times"? Before settlement? What was cause? Can you substantiate that deterioration is "continuing to the present"? Earlier (II-79) it is indicated there is virtually no trend data available.

) pg II-140 Discussing poor water quality of Little Fish Lake. It implies this is a result of past management, presumably relating to livestock grazing. Is it? I don't think so. Will removal of livestock grazing or a change in grazing management reduce the salt content of Little Fish Lake water? I don't think so. But all this certainly is implied.

2) pg II 157-9

It is noted here that horses trail as much as 8-10 miles to water and are able to utilize higher, steeper country than cattle and often concentrate in these areas. This was also apparently taken into account in range conditions studies. So, why were horse AUM's allocated only in suitable cattle range??

3) pg II-163

Mentions 4 study plots established in Stone Cabin in 1972. Why were these not discussed in Condition and Trend sections (#72-80)?

4) pg II-210

Section on Land Use speaks of the Classification and Multiple Use Act of 1964 (PL88-607) as still valid. Is it? I thought not. No mention is made here of the new "Organic Act". I would think it should be discussed.

5) pg II-213

Section on recreational resources. Couldn't this be combined with section on visual resources? Statement is made that 98% of total lands available for outdoor recreation in the area, excluding Toiyabe National Forest lands, are administered by BLM. Wouldn't it be more informative, since Toiyabe does manage a substantial part of the land, to use the percent of the total area that is managed by BLM?

6) pg II-235

(Bottom of page) States private lands used to control access to water, produce hay and green feed for saddle horses, milk cows and other such domestic stock. This is not a very good description. Doesn't mention use for range cattle when off the range seasonally (in a few cases) as bull), pastures, holding fields before sale, "hospital pastures", etc. This statement does not show interdependency between the public and private lands.

7) pg II-229

"To perhaps an even greater degree, however, the disuse, or lack of intensive use, of what private lands there are contribute more heavily to this dependence" (on federal land). I think this is arguable. I doubt if owners could afford to intensively develop their private lands without greater dependency on the federal lands. That is - these private lands (in most cases) cannot be an economic unit without grazing privileges.

48) pg II-241

"only legal means of transferring is Desert Land Act" (from federal to private agriculture). Don't believe this is true, especially since passage of "Organic Act". Also, this section (Agriculture) stands alone. It should be related to livestock grazing since nearly all the agriculture now in the area is in support of livestock operations using federal lands and, if reduced livestock dependency on public lands is now an objective of the proposal, present and potential agricultural land development for support of their livestock may be a key to future management.

49) pg II-251

Demographic data considers Nye County as a whole. An attempt should be made to separate the Tonopah RA from the rest of the County since there is so much difference between the north and south parts. Factors influencing growth, development, etc. in the north should be more clearly identified from the south.

0) pg II-257-260

I believe the data on income and employment at least in the agriculture category are misleading and with such a small agricultural base, a local survey could produce more reliable information without unreasonable effort. I have some data on employment. Livestock sales data can be obtained without much difficulty (Ihave 3 years data for two operations). This thought is corroborated (I think) by the statement on p. II-260: "Outside Tonopah, the region depends heavily on mines and ranches - products go mainly to markets outside the region, with indirect employment and income effects in these market areas". Therefore, these "benefits" are not reflected in local data.

51) pg II-264

"Many ranchers are operated by aging people and lack resident heirs to whom property title might pass." This I think is somewhat misleading. I can think of only two of the nineteen that might qualify as "aging" and although heirs might not be "in residence", this does not mean they would not take over. It often means only that the ranch won't support more families so that heirs must work elsewhere but still come back to help with haying, roundup, etc.

52) pg II-266

Indicates the general situation for ranches "is one of marginality (that is continuous threat of economic collapse)". Yet at least 2/3 of the present operations remain in the same ownership since long before establishment of the grazing district (1950). I would agree that many are marginal in terms of secure income in relation to investment and labor but they are in actuality quite stable because of the life styles and nature of management developed by the operators. Thus, I think the term "marginality" has to be better explained to project the correct picture.

pg II-274

States that vegetation will improve under the two AMP's but will otherwise deteriorate in cover, composition and vigor. Is this a supportable projection considering a 20% reduction in livestock (presumably to carrying capacity) and two months off the range during the critical growing season? Can't you find a better reference (or ground truth) than the mentioned New Mexico study?

pg II-275

"Shortgrass" would go from Orhy dominant to Hija dominant. Is present shortgrass type presently "Orhy dominant"? If so why is it called "Shortgrass"? "Bunchgrass type - decrease in bunchgrass with increase in Hija". Is Hija going to increase in crested wheat seedings? I don't think so.

pg II-275 (or 6)

Range trend - "or reach an undesirable static trend which is the estimated current (1976) Saturation" Saturation? If the current situation is static trend, why will it be downward in the future with 20% reductions and two months off range?

Note: Much of this section (Vegetative) is very speculative and of very questionable soundness, particularly when the author(s) not named.

pg II-277 Suggests an overall decline in wildlife. How can this be when (1) previous section on wildlife indicates (to me) most BLM areas (except perhaps meadows and riparian areas) are in fair or better condition and possibly improving and (2) there will be livestock reductions. It may be reasonable to assume that there won't be substantial improvement but it is difficult to see how you can support "an overall decline".

pg II-282 Speaks of water diversions now occurring and reduced fish populations. I don't think this can be substantiated. These diversions have been the same for many years (in almost all cases) and there has been no stated assumption of changes in next 15 years. Also, it is stated there are only native fish species and these, I think are associated with natural springs or ponds. Certainly fish populations are greater now overall than in historic times due to introduction and I see no major change under the "no action" alternative.

Statement made: "Sedimentation...identified as single most important non point source of pollution in U.S." (with citation). What does this have to do with the specific subject at hand? Seems like meaningless, unneccessary information.

pg II-200

Here is first mention of "Organic Act". It's buried here. Should be discussed in a more prominent place.

pg II-294 First (and only?) place mention national demand for increased red meat and livestock range AUM's. This needs more, and more prominent, discussion.

9) pg II-295 "any increase in livestock numbers would have to be at the expense of wildlife, wild horses, and other land use practices such as hiking..." I don't think this is a supportable statement, particularly if the 1976 Nevada Range Policy has any merit. And, how could increased livestock numbers be "at the expense of hiking"?

60) pg II-295 No mention made of effects on livestock operators of two-months off range during critical growing season. This would be a major change.

61) pg II-296

Expects more diversified farming. How can this be if livestock will be off the range for two months?

62) pg II-302

Lists 4 national trends (population increase, migration to "sunbelt", dependence on imported resources, continued improvement of living standard) - No mention of food shortages and increased need to use as export to balance imports.

63)

General notes on Future Environment Section (II-270-308)

1. This whole section seems to indicate a worsening of conditions (vegetation, wildlife, etc.) if the 1976 Nevada Range Policy is implemented over a 15 year period. If so, why was it adopted and why is it being used as a base line management direction from which this EIS takes off?
2. This seems to be an overly long, poorly written section with very dubious value.
3. It would seem to me that this Section would be more meaningful if it started from the assumption that BLM management would continue approximately as it has in the past ten (or 20, or 30) years.

CHAPTER III - ENVIRONMENTAL IMPACTS OF PROPOSED ACTION

4) pg III-16

"Sediment yields in this area average less than .2 ac ft/mile". Source? Is this good or bad? How does this compare with other similar areas?

5) pg III-19-31

Table III-2 - This twelve page table says to me about the same thing as the previous three pages of narrative. Is it all necessary?

6) pg III-32-36

Takes full page to say that the 32 proposed wells will be an insignificant impact in ground water and four pages to say there may be minor long term improvement in regional water quality.

7) pg III-40 "The combined yield of initial growth and regrowth from plants grazed early... is less than the total yield from ungrazed plants". I'm sure this is not a general truth. I'm sure there are a number of published studies where the opposite is true.

) pg III-43-64

Many questionable statements in description of grazing systems, e.g.:

1. p. II-43 - why is the system for Monitor considered the only "true rest-rotation system?
2. Same pg - is a 4 pasture system necessary for a 3 1/2 month grazing system beginning July 1 (Monitor)?
3. The Monitor system "would produce a definite aspect change toward grass plus total volume increase" - I doubt it - Much of Monitor is Artr type strongly dominated by Artr with little perennial grass. Doubt if a system alone will change aspect or production very much in 15 years.
4. Wagon Johnnie (p III-47) indicates that Clear and Danville Crrek will be grazed heavily by horses or cattle every year. I don't think so with the system and only 35 horses.
5. For Ione (III-51) it is stated that Treatment B would have the same impact as Treatment A. Don't agree. B would usually involve some use during the early greenup period and while soils are wet and unfrozen.
6. Page 54 for Butterfield and Hot Creek it is stated this is "late spring grazing" but the seasons stated are 6/15-9/15 for the first, 6/1-10/31 for the second. Certainly not classed as a late spring season.
7. Page III-54 - Hunts Canyon. I think a 3 pasture rest rotation for the winter-spring use area would be more effective and don't believe it would be necessary to make a reduction beyond MFP recommendations to try it out.
8. P. III-56 - Darroughs - Certainly a better system can be worked out here.
9. P. III-57 - Nyala - are 4 pastures necessary? Some areas in flat not suitable for winter use or during wet spring periods.
10. P. III-59 - Hot Creek - a complicated system with a number of problems and some questionable ideas.
11. P. III-60 - Blue Eagle - Why a two pasture deferred (?) rotation system proposed for a 4 month total fall-winter grazing season (10/1-2/28).
12. P. III-62 - Butterfield - This certainly does not fit my definition of a two pasture deferred system.
13. Definitions of systems are confusing rather than clarifying.
14. There is still no rationale given for why particular systems were selected.

9) pg III-64

States that spraying won't be done until the 8th year and then only if there has been unsatisfactory vegetative response. I don't believe it is possible to expect vegegative response to the system in proposed spray areas within this time frame. As stated earlier don't believe all revegetation should be done in 8th year (or any other single year).

70) pg III-66 States that without good information in location and palatability of threatened/endangered plant species, impacts difficult to access. I think it could be said that a system designed to provide plant vigor, reproduction and litter could be expected to benefit at least most T & E species.

73) pg III-73-96

I have three pages of notes on this section on wildlife (general) and mule deer - too many to totally list here. It is a poorly written, disorganized section. Some major concerns:

1. Points out negative aspects of "concentration pastures" but does not mention positive aspects of the rest pastures.
2. Continual note given to fall-winter browse competition. Part is certainly due to preference but part also is probably due to availability and under grazing systems grass would still be available in fall-winter. Also, previous information (Chapt. 2) indicates fall-winter deer ranges are in pretty fair condition. With reductions and systems there should be less competition overall.
3. P. III-82 - "periodic rest followed by concentrated use would maintain existing deterioration." Can this statement be supported? Also statement attributed to Hormay is not very helpful. Complete elimination of livestock has also been demonstrated in some areas to be detrimental to wildlife.
4. P. III-83 - "The forage allocation, rested pastures, and exclusion from primitive areas (of livestock) would result in an increase in populations from an estimated 750 to 1500 deer". This is a completely unsupportable statement. There are too many other factors (some obviously unknown) that effect deer populations.
5. Also P. III-83 - "While limited improvement would result from yearlong rest periods, the periodic livestock use would impair significant restoration and deny mule deer the needed forage". Who could possibly be qualified to make this as a positive statement?
6. P. III-89 - States proposed concentration of horses in Kawich Range "would maintain present poor condition of browse" - Earlier (Chapt II) browse in the Kawich was said to be in fair to good condition.
7. No mention made of impacts of proposed improvements.

74) pg III-96

Section on big horns indicates that the general present habitat condition is bad. This is not supported by information presented in Chapt. II.

75) pg III-102

(Similar statements made throughout wildlife section) "Livestock grazing would alter vegetative structure resulting in reduced food and cover in use areas..." This is a fallacy continually made in this section. Under the proposal, no pasture would be used more heavily than present, certainly most would be used substantially less.

5) pg III-106

"An estimated 90% of sage grouse brooding and nesting habitat...are in poor condition." Source? If this is true, why was it not stated in Chapt. II?

7) pg III-111

"The spring and summer grazing of approximately 1.6 million acres...would result in adverse effect on many species of ground and shrub nesting birds." More than this is now being used spring-summer. Thus, I think tne proposal wiould be beneficial rather than adverse.

8) pg III-117

Discusses impacts of land treatments for the first time in the wildlife section. Is this meant to cover impacts on all wildlife? It doesn't do it well and is misplaced if this is the intent.

- Statement that "Brewer's sparrow, etc. are virtually eliminated by total sagebrush eradication." Why say this when sagebrush will not be totally eliminated in treated areas and treated areas will be only a tiny fraction of the total sagebrush type in the study area.

9) pg III-118

Suggests decreased abundance and diversity of small mammals in treated areas. I don't believe this statement will hold with evidence from existing projects.

) pg III-122

Here ends the section on terrestrial wildlife - a very poorly organized section with a lot of questionable and irrelevant material.

1) pg III-123

Begins section on aquatic life - this continues to fallaciously assume heavier than present use in use pastures. Not true, according to proposal.

2) pg III-129

Indicates high salt concentration in Little Fish Lake and that larger amounts of organic matter would enter the lake each spring. Why would there be more O.M. with the system? Does this suggest that livestock grazing is responsible for salt concentrations in the lake?

5) pg III-131

Suggests overuse of streamside vegetation on Barley Creek. How could this be when the large allotment will be used only for 121 AUM's of fall drift from the Forest? Present situation should improve. Also discusses control of livestock by water control in Hunts Canyon Allotment in terms of adverse effects on wildlife and riparian vegetation. The only possible control by water in this allotment is by wells and pipeline. "Riparian vegetation? This whole statement is extremely misleading and suggests strongly that the writer knows nothing about the Hunts Canyon Allotment.

84) pg III-133

Table III-4 - A very poor presentation. Apparently summarizes general possible impacts of livestock grazing rather than impacts of the proposal.

85) pg III-134

Indicates a newly located horse herd on Hunts Canyon Allotment. Is this true? Where? The user has indicated to me there are none. Generally this section (on Wild Horses) is well done.

6) pg III-148

Visual impact section seems to imply that any new visual contrast is an adverse impact. Yet previous (Chapt. II) discussion speaks of drabness as a negative quality of the area. Otherwise this section is well written and straight forward.

7) pg III-155

Section on Cultural Resources well written but much longer than probably necessary. Should recent "cultural values" such as the livestock ranches and lifestyle be considered here? If so, it might speak to impacts of increased combining of ranches and resultant abandonment or deterioration of small ranch properties.

8) pg III-178

Opening statement indicating users of Ione and Wagon Johnnie are off BLM range for six months is misleading and indicates writer is not familiar with the situation. Users are in the most part on BLM range in other allotments.

9) pg III-180

Section on recreation is short, straight forward and appears quite adequate. One criticism: Table III-11 assumes increased hunter days (and presumably increased game). I don't think this can be assumed as a result of proposal implementation alone.

*90) pg III-185

Section on impacts on livestock grazing is only three pages long. This seems incongruous when compared to other sections. Certainly the proposal will result in many and complex impacts on livestock and the livestock business and many of these can be more accurately predicted and quantified than much of the possible impacts described in earlier portions of this chapter.

One glaring example: It states there will be a reduction of 44,000 AUM's with the only comment that this"would have social-economic implications". This will be rather meaningless to many without further explanation. You could explain that this is equivalent in red meat production to the U.S. annual per capita requirements for over 3500 people or, in terms of grain equivalents, to 350,000 bushels of corn. In terms of dollars it could be noted there would be an annual loss of about $66,000 to the U.S. in grazing fees, an annual income loss from livestock sales of about $132,000 to ranchers, $280,000 less of beef annually for consumers, and $1,000,000 less grain for export annually.

pg III- 185 (Cont'd)

The effect of the reduction should also be discussed in terms of effects on individual operations. Over half face reductions of over one-third of their adjudicated privileges. Several will certainly be forced out of business, have to combine with some other operation, or require additional properties. Virtually all face major changes in operating strategies and costs. Annual maintenance of the new fences alone will cost ranchers 150 to 200 thousand dollars per year.

I would be happy to work with your people in developing and providing documentation for these kinds of information if desired.

pg III-188

Section on Agriculture is only 1/3 page long and, although it notes potential croplands will be needed to produce livestock feed for animals while off the federal range, it completely ignores the impacts of the reductions and use changes on an agriculture industry in the study area that is almost wholly dependent on livestock production. This is a major conceptional fallacy that has persisted through the whole planning process and which I have pointed out several times in the past year: There just aren't any other economically viable agricultural alternatives for most ranchers.

pg III-194

Indicates no substantial effect on populations other than a change in composition in the ranching community and some increase in ranch employment. This appears to be a pretty quick pass over. What would be the effect socially, economically and environmentally if only a few more of the presently occupied isolated ranches were abandoned. We have at least two recent examples (Moore's Station, Locke's Station) on which to base an analysis. Also, what happens when long time family ranches become corporate ranches owned and operated from outside the area?

No mention is made in the socio-economic section of the cost-benefit ratio of the proposal or of the public costs not only of the improvements but for the planned additional three supervisory personnel and additional administrative costs for the District and on up the line. The District staff has increased substantially in the past year and I have heard no indication that it will be reduced when this accelerated planning effort is complete - only here that will be three additional supervisors. Thus, I would presume District personnel and operating expenses are planned to increase by several hundred thousand dollars annually over FY 1975 levels.

There are a number of other questionable treatments in this section. The entire socio-economic section needs substial editing and careful review for accuracy as well as for adequacy of treatment of specific social and economic factors. There is very little relation between the treatment here and the earlier treatment by Ganzell.

CHAPTER IV - MITIGATING MEASURES

3) pg IV-1 "BLM cannot mitigate adverse economic impacts occurring to individual operators - "BLM's charge is limited to ministrial actions dealing with grazing management functions relating to land conditions". I totally disagree with this concept. Adverse economic impacts can be mitigated substantially by interim management programs - phasing in the changes to reduce operator impacts and still initiate needed changes (and to some extent test proposed systems before full implementation). In some cases, some fairly minor changes could be made in the proposed systems which would reduce operator impacts without reducing benefits of the system. The statement also indicates that the writers no longer recognize the Taylor Grazing Act mandate to "stabilize the livestock industry..."

94) pg IV-3 (3)
I would disagree with need to allocate new AUM's first to deer and antelope until or unless deer and antelope in fact increase to numbers now being provided for with present allocations.

I fail to see benefit of fencing Little Fish Lake (5) (What would be gained? At what cost?) or Barley Creek (6) (in a large pasture which will only be used to the extent of 121 AUM's of fall drift and trailing), I doubt the benefits or need for total exclusion of livestock from Pasture 4 of the Francisco Allotment (7) (any problems can be mitigated through adjustments in the grazing system) or of fencing North Twin Streambank (8) (under the proposal this area may not even be utilized by livestock).

95) pg IV-6 Use of watering to minimize wind erosion and dust from construction sites, service roads and compacted livestock concentration areas (15) seems to be a ridiculous proposal for this study area. "...float valves at springs will allow excess water to overflow at troughs." (19). I don't understand meaning or benefit of this. (23) Troughs to be located at least one-half mile from browse stands or wildlife concentration areas. This is probably impossible in many areas. (26) fence post standards and their purpose not clear. (27) "Barriers would be built... Impassible to cattle but which horses could traverse" - What kind? How? Where? Do you have the know-how? (28) "Cattle guards will not be used in horse concentration areas." What will you substitute on travelled roads?

96) pg IV-7 (31) Substitute water lots for a trough on end side for yearlong water. I disagree with this as a general concept. Control of water can be a major land management tool and should be used when appropriate.

(32) Water will be provided for horses at existing or proposed wells and pipelines. Don't necessarily agree. The law only requires BLM to manage horses where they occurred when law was passed. Extending their range may not always be desirable.

7) pg IV-10 (43) Should be unnecessary (and perhaps undersirable) to separately fence land treatment if basic management fences are properly located and rest periods of grazing systems utilized.

(46) "Hand revegetation wherever possible" - Probably impractical, and technically unsound, and unnecessary.

(47) "Helicopters rather than fixed wing for aerial seeding". Would strongly recommend against any aerial seeding except immediately following a burn. No burns proposed.

(48) "Areas with plants poisonous to horses would not be sprayed" - Unnecessary. Already said you would fence all seedings. Even without fencing, hazard to horses would be extremely remote.

8) pg IV-11 (50) "Mitigating costs would require alternative methods of effectuating proposal with lower cost materials and labor". I'm not sure what this means but it doesn't say much - certainly not enough if cost of the proposal is a factor to be considered in the EIS.

"Impacts to ranchers cannot be mitigated unless the federal government would subsidize small operators that may go out of business." (This is, by the way, the first and only mention that some ranchers might be forced out of business.) I cannot agree that this is the only way rancher adverse impacts can be mitigated (See my comment #93).

9) pg IV-12-22
Table IV-1. Middle column of these tables is titled "Mitigating Measure(s)" and contains numbers. It is unclear what these numbers refer to (apparently to the previous numbered mitigation practices proposed).

100)pg IV-24-29 Monitoring Programs -
(a) Soil and Water Resources. Statement not clear and methods to be used not stated.

(b) There is no mention of monitoring vegetative changes, range condition and trend, utilization, actual use by livestock, or livestock gains. These factors are essential to the evaluation and adjustment of the proposal in operation and needs to be discussed in detail. This is a major oversight.

101) pg IV- General comment on Chapter IV - There should be an attempt to estimate the increased cost of the proposal with mitigating measures added. My quick estimate is roughly 2 million dollars or a 50% increase in cost of the proposal.

CHAPTER V - UNAVOIDABLE ADVERSE IMPACTS

102) pg V-4 "Individual pastures grazed during spring and summer would show short-term decrease in plant vigor" etc. This should not be true under proposal as stated.

3) pg V-5 "Late fall grazing every year...could result in general decline in shrub vigor." Doubtful if within proper grazing capacity.

4) pg V-8 "Trampling and reduced cover and food during spring and summer...would periodically reduce small animals 25% in grassland, 10% in shrubs". How can this be supported, especially if all grazing is within carrying capacity (reduced from present)? ..."effect the complete spectrum of wildlife utilizing these sites and adjacent habitat ...reducing populations." (Speaking of vegetative conversions) Can this be supported? Certainly it is an overkill statement considering size of area proposed for treatment and information available.from existing treated areas.

5) pg V-10 Small mammals will decrease in abundance and diversity in treated areas. Can this be supported by information on existing treated areas? I don't think so.

6) pg V-13 "Erosion will be reduced but not eliminated." Can erosion be eliminated from any wildland area? Is elimination of erosion a reasonable objective? If not, why make this statement?

7) pg V-15 a) "Recreation: "Recreationists would interfere with livestock operators..." Why anymore than at present? Nothing mentioned here about impacts of proposed fences in recreational use.

b) Agriculture: No mention of impact of greater livestock dependency on private agricultural lands or economic or management problems caused by the proposal to ranchers.

08) pg V-16 Only impact mentioned for livestock is reduced AUM's. There are many more: increased operating costs, problems involved with handling and moving stock, etc.

09) pg V-16-17
Social-Economics: "mitigating measures would involve "improvements and costs not discussed or considered...difficult to quantify." These should be discussed fully and are not much more difficult to quantify than the costs of the proposal itself which has been done. Referring to who pays (government) and who benefits (ranchers): "These are unavoidable adverse impacts in a public sense. Secondary or tertiary side effects (public derived) ...would be small in comparison." If this is true, why go ahead with the proposal if there is little public benefit and certainly this presentation does not assure rancher benefits? ?

A final statement speaks to the more restrictive management conflict with local and self-deterministic values and then states "Natural Resource Lands are not intended for single purpose use" This statement seems very inappropriate since this and previous chapters certainly speak far more to adverse impacts on the non-local and non-special economic interest values.

CHAPTER VI - SHORT-TERM VS LONG TERM TRADE OFFS

10) pg VI-1 "During the interim, the Nevada Range Policy would be in effect." This implies to me that, until grazing systems could be fully implemented, the "two-months off-the-range" policy would be enforced. The district manager has publicly assured livestock interests that this would not be the case and that interim management programs would be worked out with the ranchers to minimize impacts to them and still partially test proposed systems. Also, this general assurance is given in the State Director's second "Dear Range User Letter" of December, 1976.

11) pg VI-3 "Short term increases in wind and water erosion". Why, if reduced stocking and within estimated grazing capacity? Same comment for "short term declines in vegetative resources". Doubt that "trailing of livestock and rotation among pastures has effect on dispersal of plants" any more than current "free-roaming" practices.

12) pg VI-6 "overutilization of winter and spring pastures." Should not be true - same or less than present.

13) pg VI-7 "Large scale removal of sagebrush and replacement with grass would virtually eliminate certain wildlife populations from that area (approx.")". A gross overstatement. No large scale removal is proposed and certainly no species would be endangered.

14) pg VI-7 "overall productivity of streams would decrease". I don't believe this statement can be supported, particularly if mitigating measures are instituted.

15) pg VI-9 "Livestock industry is integral segment of Tonopah study area economy." Also, regionally and nationally. This is equally important considering this EIS process is being done west wide. "Although grazing on NRL represents only a small percent of livestock industry income it is considered important." This is certainly not true for the Tonopah area. Why say it even if true nationally? It sounds condescending. "Long term benefits are considered to exceed short-term losses of income from the livestock industry." - By whom? On what basis?

16) pg VI-10
"Inadvertant spill of 'toxins' could result in long term environmental effects" - What "toxins" are named to be used in the proposal? I didn't notice any that/conceivably could result in long term environmental effects.

17) pg VI-11
Alteration in quality of life "expected to be slight and whether adverse or beneficial depends on point of view." This appears to me to be a wholly unsatisfactory treatment of an important environmental concern.

(Note: This Chapter (VI) seems to be mainly rehash of previously presented material.

CHAPTER VII - IRREVERSIBLE/IRRETRIEVABLE RESOURCE COMMITMENTS

118) pg VII-2 "removal of livestock ...an irretrievable loss to the ecosystem ...in the sense that they would not be allowed to recycle...this transfer of energy ...thought to be insignificant and unmeasurable." Is this statement really necessary?

119) pg VII-2 "spending of 4.2 million dollars, etc...an irretrievable commitment of funds" - This is an understatement of costs. Same for man-power commitment which follows.

120) pg VII-4 "Commitment by public entities to change social behavior...become irreversible and irretrievable in the foreseeable future." What does this mean? What "commitment by public entities"? How does this jibe with previous statement about "ministerial" responsibilites only for BLM?

121) General comment on Chapter VII: Nothing mentioned about commitment to systems which may or may not work, which may or may not be the "best way".

CHAPTER VIII - ALTERNATIVES

*122) pg VIII-1
A much better statement could be made (and probably should be made) regarding "rejection of no grazing alternatives". No grazing alternative was, in effect, adopted for two areas where it was detrimental to other uses and to many scattered areas where it was determined that grazing was incompatible with soil, slope and water conditions. Also, reasons for deciding that grazing should be continued in balance of area should be stated, i.e., that it is a valuable public use under multiple-use policies which can be provided for on a sustaining basis with good management practices, systems and supervision.

*123) pg VIII-3

a) Alternative 1 - continuation of present management (no action) under Nevada Range Policy of 1976. This is misleading because present management certainly has not yet been effected by the 1976 policy.

b) Assumption #2 - Can you justify no further implementation of AMP's under present policy? I don't see how. You have been slowly implementing them over the past ten years and I see no basis for discontinuing it as funds and manpower are available. This sounds like blackmail to me.

c) Assumption #3 - This implies the corrolary that new improvement funds will become available if the proposal is authorized but not if Alternative #1 were selected. I don't see a basis established for this.

d) Assumption #4 - States continued management for timber, wildlife, and other resources but does not mention livestock. Does this imply there would not be continued management for livestock grazing? This would not be a valid assumption.

124) pg VIII-6

I think that the statement "long term forage availability will decline" is unsupportable, certainly if the 1976 Nevada Range Policy is assumed to be technically sound.

125) pg VIII-8

assumes threatened species might be eliminated if range condition is poor, would maintain themselves under static conditions. Not necessarily true. Some species might increase with "downward" succession or decrease with "upward" succession.

126) pg VIII-8

(wildlife) "increases and improvement would not persist due to selective use of meadows etc.", and assumption that "shrub cover would increase", are very debatable questions. Specific numbers of wildlife projected for the future under the alternative are completely unsupportable because they will be determined by many factors other than those effected by implementation of the alternative.

127) pg VIII-9

Effects described for game birds and aquatic habitat assumes "continued heavy use". I don't believe this is necessarily so.

128) pg VIII-16

a) Some ranchers "would find base properties inadequate for two months off range". This is certainly very true but should be explained. In some cases there simply isn't that much production. However, in other cases it is that there is enough production for two months or more but is used for other purposes such as bull pasture, to hold replacement heifers, or beef before shipping. Also it should be recognized that the critical growth season for the range is usually also the critical growth season for private pasture and hay land and that some private land may be snow or water covered on April 16.

b) "Range improvements would be slowed down and reduced." This is true only if assumption made that more funds will be made available if proposal is adopted.

c) "heavily depedent on weather fluctuations" - A good argument could be made that proposed systems would be more effected by weather fluctuation.

d) "Continued trespass problems." Why more than under the proposal?

129) pg VIII-17

a) "funds restricted primarily to grazing fee returns and R. I. funds." Again, how can you assume that new funds will be made if and only if the proposal is adopted?

29) pg VIII-17 (Cont'd)

b) "Ranchers would manage their lands in much the way as in the original proposal". Disagree.. This alternative would require significant changes in present management, so would the proposal (but different changes).

c) "Manpower needs would be the same for BLM and rancher as original proposal". This is totally incorrect. Needs would be quite different.

d) "less recreational income than proposal" - On what basis is this statement made?

30) General on Alternate #1: No attempt to compare costs with proposal

31) pg VIII-20

Alternate #2: minimal investment, grazing as in proposal but controlled through control of water, salting, herding and limited fencing.

a) Assumption: "Range improvements, other than fences, same as proposal". Why can't some fences necessary for implementation of system (where water, salting,herding impractical) be included?

b) Assumption: "Livestock removed from NRL for two months". Why this assumption? Apparent intent of alternative is to meet general objectives of proposal using water control, salting, and herding instead of major fencing program. If this is as stated then use should be assumed to be about the same as in proposal. Otherwise you're blackmailing again.

c) Analysis: "Major difference with proposal is exclusion of streams, meadows, etc. from livestock with 300 miles of fence vs. 949 miles of fence under proposal." This is not true if assumptions include two months off range.

132) pg VIII-23

a) "Alternate of rotating livestock with water is not feasible..." I disagree totally with this as a general statement. Many waters in the area can be shut off easily (probably the majority) and although forcing wildlife to follow the livestock may increase competition, it would also often be good range management - perhaps the only management that would allow the systems to work (whether under Alternative #2 OR the proposal).

b) "Amount of herding required would be greatly increased." Not necessarily. Consider long "trails" required by the Ralston grazing system.

133) pg VIII-24

a) "Trespass would be difficult to control between allotments." This is misleading because there are presently only a few places where trespass between allotments is a problem and I see no reason why these necessary fences could not be included as part of implementation of this alternative.

133 pg VIII-24 (Cont'd)

b) "Cattle would be more concentrated along highways because of water proximity." What in this alternative changes proximity of water to highways than other alternatives?

134) pg VIII-25

a) "Effects of total rest decreased because livestock could not be kept completely out." If this is true, the problem is only one of degree when compared to the proposal since, under the proposal, horses and wildlife would not be kept out either.

b) "Wild horses would have access to forage they have not previously used." Don't understand rationale of this statement.

c) "riding necessary to keep cattle in correct pastures would cause more stress than proposed fences and would reduce weight gains." This is quite possible but is not necessarily so. I don't think this should be stated unequivocably.

135) pg VIII-38

a) "Trespass between allotments difficult to control." Don't agree (see 131 (b)).

b) "Wild horse competition for forage would increase." Compared to what? Don't agree.

c) Livestock evaluation doesn't mention problems with two months off federal range.

136) pg VIII-39

a) "Ranch income should increase but less than in the proposal." I don't believe this can be said unequivocably.

b) "recreation income would increase but below proposed level." Don't believe there is adequate base for this statement either.

*137) pg VIII-40

"Second alternative is probably the least offensive to all groups concerned." This is probably true but it has not been described in sufficient detail (true of all alternatives to proposal) to adequately compare with the proposal. This is another major criticism of the PDES: No alternative is developed or evaluated in near the detail of the proposal so the comparisons are not fair.

*138) pg VIII-41

"One point that is apparent, regardless of whether one of the alternatives, the proposal or parts of each were instituted, is that trade-offs must meet the objectives that are designated for the area." I generally like this as a closing statement to the chapter, particularly because it

138) pg VIII-41 (Contd)

suggests that the best solution may be some combination of the alternatives. However, the statement "that trade-offs must meet the objectives that are designated for the area" is somewhat confusing since the PDES does not speak very much to the objectives and there is very little provided to allow determination whether stated objectives are attainable and reasonable. Unfortunately, such information in many cases is probably not available. This does not mean that a satisfactory EIS cannot be written. It only means (to me) that the proposal should deal less with full implementation of systems and improvements and more with securing necessary data on a continuing basis and on trials of systems and improvements in order that the best final combination can eventually be implemented.

APPENDICES

139) Appendix H - Wild Horses - includes a description of the methodology for determining ranch dependency in public land. I'm not sure I agree with the methodology but, most of all, isn't it out of place here?

MEMORANDUM

January 6, 1977

TO: Tonopah E.I.S. Staff

FROM: Bernard Shanks

Bernard Shanks, Associate Professor
Recreation Management and Planning, UNR

SUBJECT: Preliminary Draft E.I.S. - Tonopah

I appreciate the opportunity to review and comment on the Preliminary Draft Tonopah grazing E.I.S. Overall the statement reflects considerable hard work and is a definite improvement in quality over the Challis draft E.I.S. The lack of data and published research is a shortcoming in many areas of the E.I.S. Obviously management decisions and an evaluation of their impacts will be less than ideal until more natural resource data is available. My comments that follow may not always consider this shortcoming, instead reflect my overall impression or questions that resulted from my review.

My general impression is that the E.I.S. makes a spirited attempt at justifying the intensive grazing management systems proposed in the AMP's. Alternatives to the intensive systems are weak and poorly developed. I was not convinced that intensive grazing management systems are the best to protect the environment. It was my understanding that the E.I.S. would address alternatives to livestock grazing and various allocation proposals. These appeared to be examined in a cursory manner.

Of a more specific nature the recreational values and impacts were extremely sketchy. Virtually every AMP made the statement to the effect that there was no conflict between livestock grazing and recreation. I

find that conclusion absolutely unacceptable. Intensive grazing management has a negative impact on the quality of numerous dispersed recreational activities, including aesthetic values, hiking, camping and associated hunting activities.

On page I-39 the statement says that grazing will be eliminated in the Morey Peak Primitive Area and Six Mile backcountry area. First why have both a primitive and backcountry classification now that the Wilderness Act applies to the BLM? Also why is grazing eliminated from this area? Hopefully, BLM officials do not believe that wilderness classification or an administrative counterpart requires the elimination of livestock grazing.

Considering the data available the staff has done an adequate job describing endangered plant species, small mammals, aquatic life, and invertebrates. However the impact of the proposed action is very speculative and incomplete. Two sentences on reptiles and amphibians (page II-127) seems less than adequate. For more data on range insects (page II-131) I would suggest the staff contact Charles Tiernan at the Provo Shrub Laboratory, U.S.F.S. Intermountain Forest and Range Experiment Station.

The statement that Bighorn Sheep have declined because of "increased human use of the land" (page II-114) does not seem entirely complete or correct. Impact of competition with domestic livestock, introduced disease, etc. probably have had a negative influence on bighorns, as well as hunting.

I found the explanation of the visual resource inventory very confusing. Especially the statement, "This weighting is done by a team of specialists and land managers and by interpretation of public values through the BLM planning system" (page II-174). Such a statement could become a classic example of BLM obfuscation. The very next page I had a question as to why such a small area was designated for Class I management. I could only be

confused after the explanation.

On page II-223, 1,300,000 acres of primitive value land was mentioned, but only about 5 percent of that was proposed for primitive classification. What happened to the remaining 1,200,000 acres? If it is excluded because of intensive grazing management that should be clearly stated. In section II the inventory of recreation activities is inadequate but I realize the lack of information. Nevertheless attempts should be made on future E.I.S.'s to correct such problems.

In section III it is speculated that intensive grazing will result in several improvements. What studies or data show that intensive grazing will enhance some endangered plants (page III-68), will increase in diversity and abundance some small mammals (page III-103), and reptiles (page III-109) and will improve riparian areas and stream banks (page III-127)? On page III-151 concerning visual resources it is stated that the "overall" appearance will improve with intensive grazing management (also page VI-8). According to whose standards? Such a statement may be true for range managers, ranchers and fence contractors, but not for the general public. It reflects professional chauvinism and is an excellent example of ethnocentrism. Concerning recreation (page III-180) the E.I.S. claims positive benefits, and fails to discuss probably negative impacts. I know of no evidence that would support that statement.

In summary, the E.I.S. falls short of an ideal statement. Hopefully, monitoring systems and data gathering will begin for the next E.I.S. The result with more data and time for prepapation will improve on the Tonopah draft E.I.S. Because of the lack of data and information it is my view that speculative statements that are unsupportable should be omitted. Certainly many of the statements on recreation cannot be defended and should not be included unless they are backed by reliable facts.

MAX C. FLEISCHMANN COLLEGE OF AGRICULTURE

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RESIDENT INSTRUCTION

COOPERATIVE EXTENSION SERVICE

AGRICULTURAL EXPERIMENT STATION

January 7, 1977

Mr. E. I. Rowland
State Director
Bureau of Land Management
Nevada

Dear Ed:

I am enclosing my comments and related material on the preliminary draft of the Tonopah EIS.

In general, my impression of the Tonopah draft was not very good. Only one alternative was presented to any degree. The entire draft was presented in a positive sense for the proposed action, while the two other possible alternatives, no action and limited action, were presented in a negative context.

I find that much of the information concerning the interaction of livestock and their environment is not based upon existing data. Furthermore, many of the conclusions reached in the EIS are not in agreement and quite often are opposite to those shared by the scientific community. I would hope that in the final version, considerably more emphasis is placed upon existing scientific facts.

Thank you for the opportunity to review this important manuscript.

Sincerely,

A. L. Lesperance
Professor

ALL:mm

Enclosures

PRELIMINARY REVIEW OF TONOPAH ENVIRONMENTAL IMPACT STATEMENT

A. L. Lesperance

This review will be limited to those aspects of the Tonopah EIS that deal specifically with domestic livestock. Although the entire EIS deals with the impact of livestock grazing, much of the information concerns itself with various aspects of range ecology. These undoubtably will be reviewed by individuals with expertise in the specific areas. This review will be broken down into four major areas:

I - Effect of Livestock Grazing on the Environment

Considerable emphasis is placed on the adverse effect of present livestock grazing on the environment. Most researchers generally agree that fairly dramatic changes in forage composition, cover and ultimately soil erosion did occur during the early history of livestock grazing. During the period of 1880-1929, far greater numbers of both sheep and cattle grazed Nevada rangelands than they do today. In 1884, the cattle population in Nevada was estimated at 700,000 head while the sheep population in 1907 was in excess of 1,000,000 head. It must also be remembered that in those times, far greater dependence was placed on winter grazing than today; thus, the total dry matter removed by livestock during the 1880-1910 period very likely exceeded dry matter removed today by 3 to 4 fold. This early history is well reviewed in several documents (Thompson and West, 1881, History of Nevada; Hazeltine, Saulisberry and Taylor, A Range History of Nevada; and Anonymous, 1964) that I do not see referenced in this EIS.

The primary factor which brought about the destruction of these early livestock empires was the depression of 1929. Livestock numbers had not regenerated by the time the Taylor Grazing Act was established and implemented by the mid-1930's. Since that time, there has been a general decreasing of dependence on range forage in Nevada for domestic livestock.

Throughout section II, reference is made to the general decreasing state of range condition in the area due to unrestricted grazing as it occurs today. There is ample evidence to support that livestock did indeed cause certain changes prior to the Taylor Grazing Act; however, evidence supporting changes occurring after that point is difficult to find. The only real study in this regard is the exclosure work under the direction of the Intermountain Forest and Range Experiment Station. A summary of these data are not available as the EIS indicates; however, a preliminary release suggested that not many changes have occurred since 1935.

From a scientific basis, data simply does not exist to support the conclusion that present livestock grazing intensity is continuing to decrease range condition. No one questions that range condition in the Tonopah area is poor today. However, it is questionable if that condition is a product of intensive grazing prior to 1929 or a problem continuing from today's grazing pressure. Certainly, insufficient data exists to support the conclusions that present livestock grazing continues to degrade range condition.

The EIS statement suggests several other environmental changes have occurred because of either livestock grazing or forage changes due to livestock grazing. Major emphasis is placed on the effect livestock grazing has had upon wildlife population, primarily mule deer. On page 96, section II, deer fluctuations are attributed to over utilization by livestock. On page 98, section II, it is reporte that deer numbers have gone from their peak numbers of the 1940's to the all time low's of the 1960's. In the same section on page 278, the statement is made that

continued livestock use at today's level will result in further declines in wildlife numbers.

These statements are all contrary to present scientific data. Lesperance, Tueller and Bohman (1970) reviewed the historical composition between deer and cattle in Nevada and surrounding States. Their studies rather clearly show that the population peak of mule deer (which occurred in the 1950's, not the 1940's) was an artifact of plant community changes resulting from livestock grazing. Intensive livestock grazing in the period of 1880-1920 resulted in an increase of browse plant dominance. This shift in plant communities resulted in a better habitat for mule deer. Consequently, deer numbers increased dramatically to peak populations of the 1950's. Numbers have been erratic ever since that time with decreases usually outnumbering increases in most areas. However, these fluctuations are entirely explainable with a simple knowledge of population ecology. Anytime the environment is changed to enhance the growth of a species, the population of that species will expand until a new "limiting" environmental factor is obtained. Until the population is stabilized, fluctuations will occur. This is exactly what is occurring with mule deer populations in Nevada and other western states. This has also been observed by Arizona, Utah, Oregon and California researchers.

It is safe to say that if all livestock grazing were removed from Nevada in 1950, deer numbers would be fluctuating today. There is good evidence that deer over use on deer winter ranges during their peak numbers of the 1950's was a key factor in population declines of the 1960's and 1970's. Disease, increased predator problems as well as other factors could also be instrumental.

No scientific data nor any sane management philosophy can support the concept that the continued grazing of livestock, as we know it today, will result in further declines of wildlife numbers.

Stating that livestock grazing has resulted in all time low deer numbers of the 1960's is to this reviewer the most erroneous statement in the EIS. Regardless of the factors influencing deer numbers of the 1940-1970 period, deer numbers have been lower. Historical deer numbers are well documented by Lesperance, Tueller and Bohman (1970) and Anonymous (1964). Prior to 1920, deer were considered scarce in Nevada. Populations generally increased 100 fold from 1920 to 1950. Since 1950, reductions have not exceeded 50%. Thus, even in the lowest deer populations of the late 1960's, deer numbers should have been 50 fold greater than prior to 1920.

Considerable attention is paid to the effect of livestock grazing on archeological and historical sites. Cattle trampling is listed as the third greatest cause of site disturbance. Roadways are credited with 17.4% of disturbances, followed by site activities (15.1%), cattle trampling (12.9%), with accelerated erosion causing 8.2% (Section II, page 200). At a later point (Section II, page 286), accelerated erosion is listed as a secondary effect of livestock grazing. Consequently, the total effect of livestock grazing, primary and secondary, amounts to 21.1% of the site destruction. Vandalism is credited with only 4.4% of the site disturbance.

This reviewer has spent some 20 years in Nevada. During that period of time, my primary recreation has been spent in visiting historical sites. I have collaborated with Stanley Pahor in writing "Nevada Ghost Towns and Mining Camps" which is considered the most authorative text on Nevada historical sites available today. In addition, I have long been interested in archeological sites. I have been involved in the discovery of one significant site on the Owyhee desert. I am presently cooperating with University of Nevada archeologists to establish study sites at the Gund Ranch to measure the effect of livestock grazing upon archeological sites. I find it incredible that anyone could present data suggesting that livestock grazing causes nearly five times the site disturbance that vandalism is responsible for. Furthermore,

how could any study of this nature account for three place digital significance. In excess of a thousand observations would be necessary to achieve this level of significance.

Nevada's ghost towns and mining camps have been decimated by vandals. Most known, important archeological sites, likewise have been "dug" by laymen, resulting in the untold loss of archeological treasures. Again, I find it incredible that data of this nature would be reported. I challenge both the authenticity and validity of these data.

II - Implemented Plan

The proposed plan calls for implementing 14 AMP's with intensive livestock management (rest rotation) on the Tonopah area.

Ample data exists to support the hypothesis that rest rotation will improve range condition and percent grass. However, most of these observations have been made in wetter environments. One may assume, that in time, rest rotation will also improve grass cover in environments, such as Tonopah. This assumption is being made by the BLM in the EIS.

The increased forage production is being credited with increased livestock production in four of the AMP's (Section I, page 18). Weaning percentages are being increased from 15 to 30% (from present levels of 50 to a projected level of 75%), weaning weights increased by 25 to 75# (from 300 to 375#) and a decrease in death loss of 30 to 50%, all due to the AMP.

The low incidence of grass in the Tonopah area suggests that livestock grazing these ranges will consume an appreciable amount of non grass species. In studies in Delamar Valley (Conner, et al., 1963) it was observed that grazing cattle consumed a diet consisting of 26% grass, 74% browse and 0% forbs. This is not to say cattle will select browse, but that grass incidence becomes so low in fall and winter that cattle are forced to consume browse. In other Nevada studies conducted on the

adjacent Nevada Test Site, an area devoid of livestock grazing since 1935, the exact opposite occurred. Smith, et al. (1968) observed that cattle selected a diet consisting of 80% grass, 9% browse and 11% forbs on the Nevada Test Site. Thus, when grass becomes abundant, cattle will select basically a grass diet and when it becomes limited the percent browse will increase.

Cattle in the Tonopah area today consume a high degree of browse; however, grass will increase proportionately to the increase of range grass due to the success of the AMP. Increases in production are not due to the type of forage but rather its nutritional quality. Conner, et al. (1963) observed that cattle in Delamar Valley consumed a diet containing 9.9% protein, while Smith, et al. (1968) found the protein content of the diet on the Nevada Test Site to be 7.6%. Consequently, as the percent of grass goes up in a diet, the nutritional quality goes down. Therefore, one may also assume that as the percent of grass increases, due to a successful AMP, the quality of the diet will decrease. All western range nutritionists at all western Universities agree on this. Raleigh (1973) estimates yearling steer gains will decrease by 50% on a successful rest rotation program. Consequently, it is very difficult to justify, much less understand, the logic behind the assumed increases in production being proposed by the BLM.

General ranch income in the Tonopah area is projected as being increased in time (Section III, page 198-199). Total AUM's are being projected to increase from approximately 100,000 to 150,000. Thus, the additional 50,000+ AUM's computes to an eventual increase of 5308 cows.

However, the Tonopah area presently supports 140,000 AUM's of adjudicated use. Thus, the eventual projections simply get back what will be lost with the implementation of the program. Comparisons of ranch income, if valid, should be made with today, not with the forced reductions at the beginning of the AMP.

Ignoring the above discussion, the proposed increase income of ½ million dollars is questionable. The BLM indicates the 5308 additional cows will produce 3862

additional calves for sale. This computes out to a weaning percent of 72, which exceeds the State average and far exceeds the Tonopah average. In University studies in Delamar Valley (Speth, et al., 1963; Bohman, et al., 1961; Speth et al., 1962), unsupplemented cows weaned an average of 44.9% calves weighing 264 pounds at 6 months of age. Their studies were conducted under typical range conditions for several years. No level of supplementation including an additional three pounds of alfalfa per day produced a 72 weaning percentage.

Furthermore, not all calves are sold. It is customary to hold back some replacement heifers. A more correct approach would be to assume the 5308 cows will wean 50% or 2754 calves. Twenty percent, or 1062 heifers, will be held for replacements. Thus, 1.692 calves will be sold, or $220.000. One could also assume an additional $100,000 worth of cull cows would be sold annually for a total increased income of $320,000 or 64% of the projected $500,000.

The AMP will cost the Tonopah rancher a certain amount that the BLM does not consider. In section I, page 44, the EIS states that operational or preventative maintenance will be done by the allotte (rancher). The total estimated value of the improvements is $4.9 million. A usual rule of thumb on a range improvement is to assume a 10% yearly replacement value. Thus, the improvements would cost the rancher $490,000 annually for a net loss of $170,000 (490,000 - 320,000). In preparation of an EIS the BLM should fairly consider both liabilities as well as the assets of an AMP.

The cost of the improvements is also questionable. Section I, page 56, indicates the proposed 948 miles of fence can be built for less than $2,000 per mile. A recent University of California, Davis study suggests a realistic value for fence today is $3,000 per mile. Additionally, the EIS states it will take eight years to implement the improvements. Thus, assuming 5% inflation for 4 years (½ life) the average cost of a mile of fence will be $3,540. This suggests the BLM may have underestimated the cost of fencing by as much as 75%.

Section I, page 47. Crossfences will consist of 4 wires, with the bottom 2 wires smooth. How effective are these?

Section I, page 47. Why even bother to build a fence in big horn sheep country, especially if it is to be 3 wires, 20", 35" and 39" from the ground?

Section I, page 46. You suggest building a fence upside down.

III - Alternatives

The alternatives to the proposed action are: (1) no action, and (2) minimal investment. My concept of an EIS is that all alternatives are presented with the pro's and con's of each alternative being considered. It is rather obvious that the BLM is considering only one alternative in this EIS. The no action and minimal investment actions are presented in a completely negative concept. There are many positive aspects of both of these issues that are worthy of consideration.

1) No Action. Continued grazing exactly as it is today is a viable option and should be considered until such a time when sound data is presented to show that this management option is detrimental to the ecosystem. This has not been done yet.

2) Minimal Investment Action. This option basically allows intensive management to occur at a fraction of the cost to the taxpayer. My observation of the livestock industry is that they are willing to try to implement this, realizing that it will require more herding. Typical of the negative stand taken by the BLM is the statement on page 25, section VIII, that the excessive riding to implement the minimal investment section would cause undue stress and reduce weight gains of cattle.

IV - Others

In section VI, page 2, the EIS states that during the interim period (from acceptance of the EIS until the AMP is fully implemented) the Nevada Range Policy will be in effect. A clear interpretation of this needs to be obtained. Does this basically mean that once accepted, cattle will be off the range for the critical growing period (4/15 - 6/15)?

Section I, page 55. How effective is spraying in an uneven pattern? What is the long term effect?

Section I, page 60. How do you defer grazing along a stream bank until after peak recreational season?

Section V, page 5. "Possible loss of deer fetuses due to no green grass ..." This is a ridiculous statement!

Section V, page 17. This and other areas suggest the rancher is the only one to benefit from the AMP, Actually, the public stands to gain far more than the rancher from range beef production by balance of payment, etc.

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COLLEGE OF BUSINESS ADMINISTRATION

DEPARTMENT OF ECONOMICS

RENO, NEVADA 89507

January 4, 1977

Mr. E. I. Rowland
State Director, Nevada
Bureau of Land Management
300 Booth Street
Reno, Nevada 89509

1792
Tonopah Grazing ES
(N-911)

Dear Mr. Rowland:

I have reviewed the socioeconomic sections of the Tonopah Environmental Statement on grazing as requested. The documentation seems to be complete. My comments on specific sections are as follows:

Chapter II, page 258. The observed differences in employment figures reported by the Employment Security Department and the Census Bureau can be explained by the fact the Employment Security reports by place of work and the Census Bureau tabulates by residence. Thus, the difference is an indicator of migration.

Chapter II, page 260. The discussion of the employment multiplier is confusing. There is a statement that the employment multiplier is fairly large (1.7), but most of the processing of Agricultural products is out-of-state. This seems to be a contradiction. What are the jobs created locally?

Chapter III, p. 204. Under the Public Finance Section, I think the reference should be to the Nevada Constitution, not the statutes. The Constitution sets the limit on the rate of taxation at $5 per $100 of assessed value. The statutes limit the base of assessed value to 35 percent of market value. The amended constitution (1975) provides for use value assessment rather than the market value assessment which is used for other property. However, this had been the practice in the past anyway.

The greatest general defect is the inadequate discussion of cost-benefit analysis. The aggregate economic benefit will be slight and affect only 14 ranches for such a substantial cost. There will be a sizeable transfer of wealth into the area by the public investment. This will likely result in higher land values which will be captured by the 14 ranches. The implicit assumption must be that major benefits

to nation from their investment will be an enhanced environment, rather than an improved local economy. If not, this would be a questionable investment. It would seem worthwhile to make that assumption explicit, if it is correct. If it is not correct, what are the benefits which justify the investment.

I hope these comments will be helpful. If you need clarification or elaboration, please call me.

Sincerely,

Glen W. Atkinson

Glen W. Atkinson
Associate Professor

GWA/dm

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RESIDENT INSTRUCTION
AGRICULTURAL EXPERIMENT STATION
COOPERATIVE EXTENSION SERVICE

mcc 1/12
Rm 1/13

January 10, 1977

Mr. E.I. Rowland, State Director
Bureau of Land Management
Rm. 3008 Federal Building
300 Booth Street
Reno NV 89509

RE: Review of Tonopah ES (#1792, Tonopah Grazing ES, N-911)

Dear Mr. Rowland:

When reading the Tonopah ES, I concentrated on the soils-geology material, the vegetation sections, and the introductory chapters, but sketched through the rest, reading some pages closely. The ES staff did a reasonable job, considering time, data, and training for general technical writing. The editor should be commended for the whole report being at least grammatically correct and having moderate organization--no small task. However, this rough draft ES statement doesn't meet the content requirements, validation of data sources (personal observation and experience of local staff might be much more widely used if so identified and keyed to local situations), and the *elaboration of significance and relations* between environmental factors one expects of a scientific or technical report. For example, there is no indication to which plant community each of the intriguingly varied grazing management plans would be applied, or why the vegetation might be expected to respond! The writers seem to expect readers to know all they know before they read the report.

Some particular comments on specific subjects:

Soils and geology-landforms:

(1.) The description of the landscape of this area is pitifully inadequate. What kinds of landforms are present and how extensive are the various types? Is some, most, or all of the area passable to off-road vehicles? What is the drainage pattern? What are the major mountain ranges, basins, do they have like or unlike climate and vegetation? Is gullying a problem (as in New Mexico-Arizona), or remarkably scarce? What is the Pleistocene history of the area, and how might this temper

our worry about "erosion" or optimism for vegetative rehabilitation? How are the variously textured soil parent materials distributed across these simple landscapes?

Soil surveys of adjacent areas combined with photo interpretation should allow rather rapid, general description of the Tonopah ES area.

(2.) The sources from which the (apparently "exploratory") soil map was made are well documented--one of the few such cases in this report--but a somewhat expanded description of how extrapolations were made would give technical readers more confidence.

(3.) The narrative description of the kinds of soils in the area, their properties significant to land use, and their relation to vegetation are remarkably inadequate, or entirely lacking. More is told about soils in two paragraphs of the vegetation section (page II-58) than in the entire soils narrative. Granted, there is a soil map legend with some soil property identification and interpretation, and there will be a soil map, but even a skilled soil scientist would have to work long and hard to synthesize a general picture--and a nospecialist would best ignore the whole soil section.

The narrative text says the "soils...are of wide contrast." *What contrasts?* What kinds of soils? What problems and potentialities? For an "environmental" report purporting to describe the resources of this area, I should think at least these sorts of soils facts should be generally described:

(a) What major kinds of soils are present and how extensive is each?
(b) How do the major kinds of soils occur in this landscape, i.e., how related to landform?
(c) How do the kinds of soils relate to major plant communities?
(d) What sorts of limiting soil horizons, soil depths, soil properties occur with respect to vegetation, road construction-maintenance, seeding?
(e) Are there areas potentially liable to erosion and others where it should be no problem?

(4.) The narrative says there are 50 soil map units; tables D-1 and D-2 list some 72 map units. Are there to be one or two soil maps, since a statement "grouped into six general areas" implies the existence of a very small scale, very generalized soil map?

(5.) The rational for some soil interpretations such as sediment production, productivity, erosion hazard, and waterholding capacity (I think that was there--my notes are inadequate) escapes me since soil identification is at Subgroup level. Some explanation would increase confidence.

Vegetation

(1.) The plant communities seem rather crudely defined, if not

inadequately defined. If black greasewood and Bailey greasewood are lumped in the same unit, then the environmental significance of salty-fine textured, lowland sites with respect to non-salty, medium-textured upland sites is denied. This sort of crude grouping makes one wonder if this ES report can be used with confidence in the underlying competence of AMP designs.

(2.) The "basic climatic-vegetation zones" need to be defined by dominant plant communities and major species. They should be shown on a very small scale map. Can "steppe" be applied to more than very small areas here? Is it reasonable to describe this whole area as "cold desert" when galleta grass is so prevalent in many parts of it?

Conclusion

It takes hard, concerted work to get as ambitious a report as this to the first-review status. The staff should be complimented, since they have produced something which can be argued over, and reworked, and have done it in a very brief period.

Sincerely yours,

Frederick F. Peterson

Frederick F. Peterson
Professor of Soil Science

kb

Department of Range Science

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80523

k 1/3
RS 1/5
wcc 1/6
Rm 1/7

December 29, 1976

Mr. E. I. Rowland
Bureau of Land Management
Nevada State Office
Room 3008 Federal Building
300 Booth Street
Reno, Nevada 89509

Dear Ed:

The first 2½ chapters read so smoothly that I was indeed impressed with the method you had employed to integrate an impact statement with a management plan; however, when I got to Chapter III-77 it read as though you had sent it to the National Wildlife Federation and the pages III-77 to III-99 were their answer to your request for a review of the management plan presented in the first part of the document.

I presume we should print one of these EIS's according to the likes of the wildlife biologists without baseline information on the specific areas in question to justify the adversity said to be occurring or that "would" occur if the program were to be initiated. The outcome of a court case or two will determine whether or not we are to continue this nonsense or go back to writing honest-to-God management plans to correct the undesirable situations known to exist. To me the old-fashioned method of using a field analysis of cause and effect principles followed by corrective measures to eliminate or ameliorate the unsatisfactory situations is the way to go.

The document seems rather large for the needs of an Environmental Impact Statement but it does make good sense up until the Wildlife Biologists

take over in Chapter III. They do indeed destroy the purpose, the benefits, or the justification of your designed grazing systems. Their solution would appear to take livestock grazing off entirely and then there would be no serious adverse impact with big game numbers.

I personally doubt that the competition either on the foothills and adjacent deserts or the meadows exists as stated in Chapter III-77 to III-99. As I recall there really should not be a scarcity of winter range for deer in the Tonopah area. Furthermore in my many years of studying the use of mountain meadows I never had any appreciable area that showed significant competition between deer and cattle. I therefore feel that the competition inferences are unfounded and lack baseline information to back them up. What really is the competition ratio from actual field studies? To me the statements are mostly supposition with no honest data to support the adverse impacts concerning the stated effects of competition of livestock with big game.

Why in God's name does not a management plan provide forage for all the animal numbers that are desired on the area regardless of animal species. There is really no competition among animals unless the range forage is limiting on areas they use in common.

You write an allotment plan in your document supposedly for all animal species for the desired quantity of each and then tear hell out of it by saying competition is going to cause not only continued range deterioration but also death and destruction of animal species because of lack of forage.

It sounds as though the range specialists wrote a plan and then the wildlife specialists came along and criticized it as being inadequate because if a wildlife species eats a plant that is also eaten by livestock the competition is detrimental to range and big game.

Pages I-1 to pages III-75 try to develop a grazing plan to correct adverse features in past management but pages III-77 to III-99 try to destroy this effort and does this rather effectively. I am of the opinion that the same wildlife biologist wrote this report that wrote the Challis EIS, since pages III-94, III-97 and III-99 are almost identical to pages 5-5 and 5-8 of the Challis report where it talks about malnutrition (1), (2), (3) in a rather ridiculous way.

What sort of scientific reasoning is behind the statement that grazing by cattle in the fall for instance leaves less feed for the deer, the antelope, and the big horn sheep. This is perhaps true of any situation where all herbivores exist but, in a management plan, forage is provided for all. Even where a single antelope grazes there is less feed for deer, mice or even another antelope. However there should be ample need for all so really the impact bit is a narrow point of view and puts down the entire allotment plan without scientific justification.

A scientific approach to a competition index between animal species determines the AUM's of each species on the area, the floristic diet of each animal species, and the biomass of each plant species that is available for animal consumption. Then and only then can you accurately determine how one animal species will affect another with respect to the stocking rates of each. Until there is a deficiency of forage for either species there is no competition because there is no limiting factor between the two animal species.

It seems to me that the allotment management plans provided for increased numbers of all wildlife but the wildlife biologists, pages III-77 to III-99, state in many cases the deterioration of the range will continue, and that there is direct competition between livestock and big game. In other words,

according to the wildlife biologist, the management plans have not satisfied his objectives; therefore, he puts the plan down in a rather presumptive manner. Why write a plan until BLM personnel agree upon its suitability and all are supportive of it. A rewrite by a rational biologist might be the answer since I feel there are only opinions supporting the odd way competition is used. Under the present interpretation the biologist would feel that livestock should never graze any areas used in common with deer because a bite of forage from browse plants by a cow is ruinous to deer winter range and a bite of new growth from grass or forbs is ruinous to spring range for deer, antelope and big horn sheep.

At this point I feel the National Wildlife Federation wrote the pages III-77 to III-99 instead of an integrated knowledgeable team of experts employed by BLM. Pages III-77 to III-99 are destructive criticisms of the entire document and are included as part of an overall management plan. Now what could be more ridiculous for BLM to pull off at this particular time? In a court case you would have to agree that there really was no team planning but rather dissension in the ranks between rangeland planners and wildlife biologists if I interpret the present document correctly.

I am not in a position to judge the need for reduction in livestock numbers but it would seem, in some cases, that big game numbers may exceed their seasonal supply of forage as well. According to the potential capacity of the range, stocking rates are considerably below this in most cases (see Appendix).

Are there forage figures available, or better yet range condition and trend figures available for each vegetation type within each allotment. It would seem desirable to describe the unsatisfactory situations and the corrective measures in each case to correct the situation. This lends

justification and credence to the management plan as well as an impact statement.

I personally felt that the part or parts on wildlife impacts were lacking in a data base for claims on diet overlap and the destruction wrought by cattle upon the meadows and riparian vegetation that seemed to be associated with big game. Big game animals would contribute to the habitat destruction as well as livestock. Also the statement that browse does not respond to intensive management systems but grasses do is an incorrect statement. This indicates a lack of knowledge in research with mixed shrub-grass range.

Again, it is hard for me to believe that there is a scarcity of winter range for big game with all the foothill and adjacent desert range in the Tonopah area. It would seem that the competition for winter range for deer and antelope, at least, has been exaggerated in the document.

In the document where impacts of livestock grazing are dealt with there are a great number of "woulds" used. For instance, if the cattle used Pasture 4 during August there "would" be continued deterioration of the range. This to me is not an assumption; it is a statement of fact as though research on the area has preceded the conclusive statement.

It also seems downright spiteful that the benefits to man for his need for a large share of his meat protein at a reasonable price in the future can come from rangelands rather than from intensively managed agricultural lands. In the good Lord's plan he provided a renewable natural forage resource that furnishes forage for domestic animals at minimum expenditure of finite supplies of fossil fuels. If we average the consumption of range steers, hiefers, and cow-calf units we find that for about every 17 pounds of useable range forage a pound of animal gain is produced for the needs

of an ever increasing population.

I as yet cannot understand how competition is used by the wildlife biologists in Chapter III. It seems there would always be competition by his definition if two animal species ate the same plant regardless of quantity of animals or plants. AUM's are made available for both species of animal by the management plan yet the wildlife biologist insists on stating that malnutrition and efficiency of reproduction through abortion and death of young will surely occur. I do not recall ever reading an article on wildlife nutrition where this was shown to be the case on either winter range during gestation or on spring range during lactation. My special field is range nutrition and my research work in this area has shown that tremendous stress with both sheep and cattle can occur with weight losses for sheep and amounting to 45 pounds and for cattle as much as 200 pounds without any cases of abortion. After spring growth starts even the heaviest of grazing that causes losses of ½ pounds per day and 2 pounds per day for sheep and cattle respectively did not cause death or losses among the newly born offspring. I am assuming the same would be true for wildlife but I could be convinced otherwise if the wildlife biologist would cite some references that I could read that applied to the range conditions of the Tonopah area.

We also seem to insist that bacterial counts in running streams from defication of livestock would reduce oxygen availability. This has been studied in several states and is certainly not the case in mountain streams. Therefore it would seem that the statement is here again as was in the Challis report. It again appears that there is a lack of data and that we are grasping at straws to eliminate livestock grazing.

I am convinced that it will require some lawsuits to test the reliability

of conclusions or inferences that appear to be based upon theory or presumptions that all adverse features ever associated with unwise grazing is present on every foot of BLM range that is presently grazed by livestock.

At this point it appears that I am reading a reproduction of the old Nevada report but simply at another location. I find such comments as found on III-132 a bit devastating. There are a series of assumptions that might not be created at all yet it is stated that it will all come about without fail. There is no baseline data to assure that this will be the case after the plan is initiated. Therefore it is not reliable in court except as an opinion which can be countered with another opinion or that it is based primarily upon supposition.

I can only draw two alternatives at this point of reading the Grazing Impact Statement. (1) We pacify the wildlife biologist, the archeologist, the landscape architect, the outdoor recreation specialist, and the hydrologist by removing livestock from all public land or (2) we get back to realism by identifying the ecological response units, and their condition and trend status with respect to land management objectives along with the management alternatives to meet the objectives.

The way these impact statements are written, do not, in my estimation, present an intermediate course that would be acceptable to the public if they took the time to read these voluminous documents. On page III-76 it is not clear to me how livestock grazing would destroy 72 cultural resource sites. It also states that this loss or disturbance would adversely affect the quality of recreation in the area. Such a statement does indeed suggest that we remove all livestock and preserve the cultural areas, whatever they are, for posterity.

First we point out all of the adverse features of livestock grazing in

Chapter III. This appears true whether it be one cow, one sheep or 6,000 of them. Then in Chapter V which addresses unavoidable adverse impacts and lists each and all of them again. Then in Chapter VII the irreversible and irritrievable impacts list each and all of the adverse impacts that were previously listed in Chapter III and Chapter V once again. By this time even I am brainwashed into believing that livestock grazing on Public Lands is indeed undesirable and should be eliminated at the earliest possible moment. At this stage of reading, it truly appears that livestock grazing is dangerous even though herbivores have grazed and fed man and carnivores for millions of years without apparent harm even though there was no scientific disciplines around to assess the true situation. May the Lord help us when we start writing EIS's on our farm lands and we find we cannot crop them because of the infringements upon natural things.

Adversities that are invariably associated with livestock grazing by other disciplines but are seldom documented on the area in question are: Cultural sites are destroyed, loss of threatened and endangered plant and animal species, deer, antelope, and big horn sheep populations are held down because of competition from livestock which causes malnutrition, death of young, etc. Livestock grazing causes loss of vigor of plants which lowers the quality of the landscape views and when animals concentrate in areas or when the physical management facilities are considered intrusions upon aesthetic quality. Livestock, unlike big game for some reason, deficate in the streams and supposedly cause bacteria buildup causing loss of oxygen for aquatic organisms. It seems that the hydrologist was absent because he could have presented the adversities of soil compaction by trampling by even one cow. Thus less infiltration would occur and more runoff and pollution of the waters.

In the last chapter we mention that various adverse impacts mentioned earlier such as competition between deer and livestock, big horn and livestock are now said to be unaffected by various alternatives. Therefore unaffected and competition appear to present conflicting views to the reader.

As an example of a positive approach rather than negative toward livestock grazing on public lands, I would state for instance that during fall and winter months when livestock and deer, antelope or big horn sheep graze the area at a comparable season there would be overlap amounting to 18, 5, and 3 percent respectively or whatever measurements showed these percentages to be. Since adequate forage for both the number of livestock and big game are taken into consideration in allocating forage in the management plan, the health of the range and animals are appropriately cared for.

Why does not the BLM use a Goal Programming approach that shows the trade-offs for each of the uses that are suited to the area. For instance for any area in question such as say Pastures 3 and 4. One hundred deer graze on the area for 3 months and 100 cattle graze the area for 3 months. There is a 20 percent overlap in diets and 5 deer equal 1 cow unit on a metabolic weight ratio. Thus in theory for each cow removed 1 deer could be added or for each deer removed one cow could be added until the full capacity for either is reached. This is the trade off for these animals on this specific area. And shows that the impact is a two way interaction and not just an impact of cattle upon wildlife. The same can be shown for recreation and grazing or for timber harvests and grazing.

Notations for your consideration are made on individual pages of the document which we are returning under separate cover by bus (postal).

I am also sending under separate cover some bulletins that you might have your wildlife people review for increased knowledge of plant defoliation

and seasonal use.

Sincerely,

C. Wayne Cook

C. Wayne Cook
Department Head

CWC:md

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January 11, 1977

Mr. E. I. Rowland
State Director
Bureau of Land Management
Nevada State Office
Federal Building
300 Booth Street
Reno, Nevada 89502

RE: Preliminary Draft of the Environmental Impact Statement on Livestock Grazing in the Tonopah, Nevada Study Area

Dear Mr. Rowland:

At your request we have reviewed the above-captioned preliminary draft impact statement. We appreciate the opportunity to comment on this statement at this stage of its preparation and we hope that our views as set forth below will be useful to its authors, and to the Bureau as a whole.

We have concluded that the preliminary draft wholly fails to comply with the National Environmental Policy Act of 1969 and with the opinion and final judgment in NRDC et al. v. Morton et al. Despite several marked differences between this document and the Challis draft, at this point in time, it is as far from being an adequate, site-specific analysis of existing and proposed grazing in the Tonopah area, and alternatives thereto, as was the Challis statement.

Although the pre-draft is better written than the Challis statement, and reflects the fact that more time was allocated to its authors than was allocated to the authors of the first grazing statement, it is simply too general to satisfy applicable legal standards. Three of its major flaws existed in

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the Challis statement: First, it fails to contain a rigorous analysis of the capacity of each of the proposed grazing areas to support any given level of livestock use; second, its discussion of impacts is inadequate; and third, it fails to consider meaningful alternatives to the proposed action. The fourth major flaw of the document stems from its treatment of the Nevada Range Policy and the existing grazing management problems in the Tonopah area and their causes.

1. The Nevada Range Policy and Grazing Management Problems.

As you know, this document does not exist in a vacuum. Its preparation was preceded first by our lawsuit, in which we demonstrated the significant adverse impacts which livestock grazing has had, and is having, on the Public Lands in general and on specific areas therof. In addition, and even more significantly, its preparation was preceded by issuance of both Nevada Reports and your letter of January 23, 1976, to "range users." Both of the Nevada Reports document the existence of numerous significant problems associated with the management of grazing in Nevada, as well as the degraded environmental conditions which have resulted therefrom. Your January 23rd letter also acknowledges serious management problems.

As I stated in my letter of March 25, 1976, to District Manager Nodine, a copy of which was sent to you, we believe that the Tonopah statement "should respond directly to the management problems revealed by any of these documents and which, in fact, exist with respect to the management of grazing" in the Tonopah Study Area. The problemsidentified in those documents include, for example, the failure to consider adequately the forage and other habitat requirements of wildlife species, including wild horses; the lack of sufficient data to properly manage range resources; the production of inadequate vegetative material "to meet the forage requirements of livestock active and regular non-use licenses; wild horses and burros; wildlife and the needs of other resources values"; significant livestock trespass; grazing year-long in

disregard of the Federal Range Code requirement that proper seasons of use be established; and grazing in unsuitable areas. (Letter of Jan. 23, 1976, Items 2 and 3; Nevada Report, February, 1975, pp. 32,34,37-40, 44.)

It is clear from the preliminary draft that these problems do exist in the Tonopah area. (See, e.g., pp. II-283, III-12, I-37 (Table I-4), 111-187, II-233ff (Table II-40), II-294.) It is equally clear that they, in turn, have had adverse impacts on the vegetative and other resources of the publicly-owned lands in question. For example, fifty-one per cent of the entire area is in poor range condition for all classes of livestock, while only 40% is in fair condition and only eight per cent is in good condition. Big game numbers have declined dramatically, (p. II-95), and it is clear that adjudicated class I livestock demand cannot be met, given current range conditions and other resource needs. (Table I-4.)

Although the pre-draft does reveal that the resources of the area have been generally degraded, it consists basically of generalities about the grazing problems, their causes and remedies. (See, e.g., pp II-94-II-95, II-207.) As such the document does not respond directly to existing grazing problems. To remedy this major defect, we believe that the formal draft must, first, specifically identify these problems, their causes and their environmental results. In addition, it must relate the proposed action, and alternatives thereto, to the specific problems. Finally, it must assess the extent to which these alternative actions will in fact remedy these problems and their results.

For example, as indicated above, it seems clear that there is a trespass problem in the Tonopah area. (See pp. 111-185, 111-187.) The draft statement should acknowledge this problem directly, and assess as fully as possible the severity of the problem and the extent to which it has

contributed to the current degradation of the area's resources. In addition, it should analyze the degree to which the problem will in fact be resolved by the proposed action, rather than merely repeat the pre-draft's bare assertion that trespass control will be "more efficient" if the proposal is implemented. (p. III-187.) Similarly, the draft should do more than simply acknowledge the facts that substantial amounts of regular non-use have been taken in the past five years in the area and that ranchers have been "decreasing their non-use capacity." (See, e.g. Table II-40, p. II-233-234.). In addition to identifying the amount of regular and suspended non-use carried in the area, it should analyze the specific environmental impacts of the problem, rather than merely state, as the pre-draft does, that the decline in non-use "could imply that the range is improving. This, however, is not likely." (p. III-207.)

We are also concerned about the draft's treatment of the "Nevada Range Policy". Two different problems are involved. First, Judge Flannery's order in NRDC et al. v. Morton et al. directed the Bureau to prepare site-specific EIS's which discuss in detail the environmental impacts of both existing and proposed livestock grazing management. The draft treats the Nevada Range Policy as if it were, in fact, the current "system" of range management being applied to the Study Area. For example, the draft states that the present grazing management of the area was established in January, 1976, "by implementing the Nevada Range Policy." (p. I-2). Similarly, the "no action" alternative treats the implementation of this policy as if it were an accomplished fact. However, both your January 23rd letter to "range users" and your April 20, 1976, letter to us, reveal that the policy's implementation is tied directly to, and dependent upon, the preparation of site-specific EIS's. Your statement that "no areas have been targeted outside the grazing schedule for action 'ahead of' the programmed grazing EIS's"clearly reveals that no remedial actions,

such as implementing needed forage allocations or establishing seasons of use, will be taken in advance of these EIS's. Accordingly, we believe that the Tonopah EIS, and all other EIS's prepared by Nevada BLM, must describe the manner in which grazing is being currently administered and the environmental impacts therof, as well as the impacts which would result from the actual, on-the-ground implementation of the Nevada Range Policy.

The second problem with respect to that policy concerns the failure of the preliminary draft statement to contain any explanation of the manner in which "the step-by-step process that will be followed to improve the public range" was carried out in the Tonopah area. (Letter of January 23, 1976, p. 1.) In our letter of March 25, 1976, to Mr. Nodine, we expressed our view that the Tonopah statement was required to contain a detailed explanation of this process. In addition, we described in detail the manner in which the statement should treat two of the essential steps therein-- i.e. the updating of the area's range surveys, and the determination of current and potential forage productivity of proposed allotments. As indicated, however, the pre-draft fails to contain the required analysis of these or any other steps in that process. For example, the fact that the range surveys in Nevada in general are inadequate was acknowledged in your letter to "range users", as well as in both Nevada reports. However, the pre-draft makes no attempt to analyze the degree to which the surveys of the Tonopah area accurately reflect current range conditions. Nor does it describe the specific techniques, if any used to update them.

There can be no question but that this type of analysis is required by NEPA. In other words, it would belong in this statement even if the Nevada Range Policy had not been promulgated. The fact that the policy was promulgated makes its inclusion even more essential. For example, it seems clear from

Table I-4 that range conditions in this area must "have changed dramatically since the original resource inventories were conducted." (Jan. 23, 1976, letter, p. 1.) Even if this were not the case, however, the draft would need to demonstrate the existence of forage allocated to livestock and other uses. (See discussion below, pp. 7 - 8.) Yet, instead of doing this, it merely asserts that forage allocations were "made on the basis of range surveys which demonstrated the available forage in the resource area." (p. I-58.)

This statement is required to be a site-specific analysis of the environmental impacts of existing and proposed grazing in the Tonopah area. Accordingly, as we have previously pointed out, it must supply information designed to allow decision-makers and the general public to answer two questions: (1) How much grazing, if any, should be permitted in the specific areas involved? And, (2) How should the amount permitted be managed? (See, e.g., our comments on the Challis draft, a copy of which is enclosed, and our outline on the optimum contents of site specific EIS's, sent to you on January 8, 1976.) In order to answer these questions, the EIS must, above all else, contain a rigorous assessment of the capacity of each proposed grazing area to support that use at any given level, as well as a legally adequate analysis of properly selected, meaningful alternatives to the amount of grazing involved in the proposed action. In addition, it must adequately assess the environmental impacts of the proposal and alternatives thereto. As indicated above, the preliminary draft fails to satisfy any of these requirements.

2. Grazing Capacity

It is clear that, to be adequate, an EIS on grazing must take the data available about each proposed allotment, assess the reliability of those data, and analyze, in a comprehensive manner, what that information indicates about the uses and management of the resources involved, including

how forage allocations among competing uses should be made. However, in place of a rigorous analysis justifying the decision to allow the proposed number and types of livestock to graze a given area, the preliminary draft in essence asks readers to assume that these decisions were properly arrived at. This approach to impact statement analysis ignores the Bureau's clear obligations under NEPA. Moreover, it ignores the fact that the pre-draft, on its face, raises serious questions about the rationality and propriety of the proposed livestock grazing.

For example, the fact that the Bureau proposes to use grazing to "maintain or improve" the current conditions of the "renewable resources" of the Tonopah area does not relieve the Bureau of the obligation to explain or analyze the decision to use grazing as a mangement tool. (p. I-10.) The validity of this decision, and in particular, the capacity of these lands to support grazing at any level, cannot be assumed. Nor can it be inferred from the benefits which are predicted to result from the proposed grazing or from the objectives of the MFP.

Similarly, the fact that grazing was eliminated from 32,490 acres of the study area, (p.i), and reduced from adjudicated levels, does not mean that the Bureau is entitled to ask readers of this statement to <u>assume</u> that grazing is a proper use of the remaining allotments and that the proposed grazing levels and systems are also proper. A rigorous analysis of the capacity of a particular area to support livestock grazing at the proposed level is essential to the preparation of an adequate EIS. The statement must demonstrate that the proposed allocations of forage to livestock are in fact proper. As stated in the Bureau's Instruction Memo # 75-407, "Updating Range Management Policy Guidance," "Initial stocking rates are of the utmost importance and must not exceed the existing livestock grazing capacity of the allotment."

However, the draft <u>never</u> analyzes the capacity of any

of the areas, given their resources and their current conditions, to support the levels of livestock use or the intensities involved in either the proposed action or the two alternatives which it considers. For example, the draft never analyzes the capacity of the Reveille allotment to support 14,400 AUM's of cattle use, (Table I-4, p. I-37), given the fact that 91% of it is in poor vegetative condition. (Table II-19, p. II-73.) Similarly, although 64% of the Ione allotment is in poor condition for cattle, and only 31% is in poor condition for sheep, (p. II-76), the draft never analyzes the proposal to graze both cattle and sheep therein nor does it demonstrate the existence of the 6,929 AUM's of forage allocated thereto. (p. I-34.) The fact that, in these areas, the proposed AUM's for livestock are less than both the adjudicated Class I demand and the MFP level does not mean that the actual allocations need not be explained and that the existence of the allocated forage need not be demonstrated. Moreover, where both cattle and sheep are involved, as is the case in the Ione allotment, or where the original adjudication of livestock use was based on sheep, but cattle are now grazed, as appears to have been the case in much of this area, the draft must discuss specifically the suitability of the lands involved for the particular kind of livestock use proposed.

An analysis of the capacity of an area to support domestic livestock grazing is also necessary to permit an understanding of why particular grazing systems were selected for the areas involved. The pre-draft, however, totally ignores its obligation to present an explanation of this process.

In addition, the kind of analysis referred to above is an essential adjunct to the kind of analysis of the applicable MFP which is required by NEPA. Unfortunately, such an analysis is not contained in the draft.

In the first place, the pre-draft states that a completed MFP did not exist for some of the lands in the study area. (p. I-57). Nonetheless, AMP's have apparently been developed

for these lands. If so, this would seem to be a violation of the Bureau's planning system which requires such plans to be developed after, and in compliance with, MFP decisions. This fact is completely ignored by the pre-draft which also fails to describe the procedures and criteria by which these AMP's were developed in the absence of an MFP.

Moreover, as we have previously pointed out, all grazing EIS's must contain a description of the goals, objectives and constraints of the applicable MFP, as well as a detailed analysis thereof that will allow readers to understand its land allocations and their validity. Like the Challis draft, however, the instant pre-draft fails to contain any of this information with respect to the completed Tonopah MFP which is applicable to the remainder of the lands in the study area. As the result, it is impossible to determine whether the proposed action or any of the alternatives considered in the statement are consistent with that MFP. Moreover, it is equally impossible to evaluate the choices between competing resource uses which have been made by the MFP and are reflected in the statement. (See our comments on the Challis draft, pp. 6-9.)

A detailed analysis of the MFP is especially necessary in this instance because the preliminary draft itself calls into question the validity of that plan's recommendations. For example, the draft asserts that the forage allocations for livestock, wildlife, and wild horses were "made on the basis of range surveys which demonstrated the available forage in the resource area." (p. I-58). It concedes that these allocations, despite being based on these surveys, exceeded "available supply", necessitating a "management decision on forage allocation." (Id.) It sets forth some of the criteria followed in making that decision allocation, but makes no attempt to actually apply these standards to

each of the proposed grazing areas. Instead it presents a table which sets forth the "end result" of that application. (Table I-4, p. I-37.) That table in turn raises a significant question which is not addressed by the pre-draft: i.e., how and why the forage allocations for some AMP's were increased over the MFP allocations.*/

3. The pre-draft's discussion of impacts.

In addition to failing to demonstrate the rationality of the proposed decision to allow a total of 115,193 AUM's of livestock grazing to take place in particular areas, the pre-draft also fails to demonstrate that the impacts which it predicts will result from such grazing, and the alternatives which it considers, are in fact likely to occur. It is clear that an adequate EIS cannot merely assert that certain results can be expected to result from the adoption of proposed grazing systems or alternatives thereto. It is simply unsatisfactory to state, as this preliminary draft does, that its analysis of environmental impacts is based on the explicit assumption that "objectives outlined for each AMP can and would be attained within 15 years after implementation." (p. III-5).

Even assuming that the preliminary draft contains sufficient, accurate baseline data about the resources of the instant area to enable reliable predictions to be made about the impacts of the proposal and alternatives, the statement must describe the precise procedures which were used to produce the results it claims will follow the implementation of any of the various actions. For example, although the pre-draft does not make specific quantified predictions about the increases in the vegetation in each allotment which will result from implementing the proposed action, as did the Challis draft, it does

*/ As indicated above, Table I-4 also reveals that the Class I adjudicated demand in the study area cannot be met given current resource conditions. However, this fact is not elaborated on or used as baseline data for range planning and management.

predict that the proposal will result in permitting livestock to graze at or slightly below adjudicated use levels - a 30% increase in vegetation for livestock alone. (See, e.g., p. V-16.) It presents no support for this prediction, however, beyond a general discussion of the manner in which vegetative growth requirements will be met by the various systems involved in the proposal. The document refers to a few studies, but fails to present any specific information about them, such as their specific findings. Nor does it describe the manner in which those findings could be, or were, utilized to predict the asserted result. While we would hope that vegetation for livestock, wildlife, and other uses in the Tonopah area would increase if the proposed program were implemented, the fact remains that the draft must demonstrate the likelihood of its occurence, rather than ask the public to believe an unsupported assertion.

Moreover, it should be noted that this document does in fact suggest that the Bureau does not possess sufficient, accurate baseline data about the resources of the area to allow impacts to be reliably predicted. First, as noted, the pre-draft does not make any specific predictions about the vegetative responses to this proposal, despite the fact that these responses are the key to achieving the goals for the area. Moreover, it does not present any explanation for this failure. In addition, its treatment of admittedly unavailable information is inadquate under NEPA.

Grazing statements in general must fulfill certain obligations under NEPA with respect to unavailable data. They must specifically identify unavailable information and indicate how significant deficiencies will be remedied. In addition, they must assess the relevance and significance of that information in order to demonstrate that the Bureau possesses sufficient, reliable data about the resources involved to formulate responsible proposals for their management and to predict the impacts of implementing such proposals.

The pre-draft purports to meet these obligations, but in so doing, as indicated, it raises serious questions. For example, it admits that "there is little existing soil and watershed trend data available in the Tonopah study area." (p. III-12.) It asserts that this missing information is not very significant since "run-off currently presents no problems." (p. III-16. Emphasis added.) This assertion, however, ignores the fact that the increased intensities of use which are involved in the proposed action may significantly increase run-off - at least in the short-run. If this is not likely, the draft should so state and it should present the evidence on which this conclusion is based.

In addition, the pre-draft admits that, because such data is lacking, it is impossible to "adequately predict impacts [of the proposal] on hydrologic outputs and erosion-sedimentation responses." (p. IV-24.) Nevertheless, the pre-draft does make predictions about these impacts, although it does not quantify them. It predicts, for example, that both wind and water erosion for virtually all proposed allotments "would remain at present levels or decrease slightly." (Table III-2, pp. III-18 ff.) These predictions, we are told, are based on the "intuitive judgments" of field employees. (p. III-12.) The Bureau must recognize that it cannot rely on such judgments where they are based on the explicit assumption that the AMP's will produce the desired results, where there is no site-specific analysis of the capacity of individual areas to sustain the proposed levels of use and intensities, and where the monitoring activities which presumably will obtain the missing information are described only in extremely general and non-prescriptive terms.

3. Alternatives

Consideration of alternatives has been referred to as the "linch-pin" of the environmental assessment procedures mandated by the National Environmental Policy Act of 1969 ("NEPA"). Monroe County Conservation Council v. Volpe, 472 F.2d 693, 697-698 (2d Cir. 1972). The courts, including Judge Flannery in

NRDC et al. v. Morton et al., have consistently recognized the overriding importance of this element of the NEPA process. However, the Tonopah pre-draft, like the Challis draft which preceded it, fails to analyze the kinds of alternatives required by NEPA and by Judge Flannery's decision.

The pre-draft considers only two alternatives: no action and "minimal investment to achieve basic management objectives." (p. VIII-1) Aside from the fact that other meanginful alternatives should be considered in the actual draft (see discussion below), the document clearly reveals that the selection of these two alternatives was motivated by an wholly incorrect interpretation of NEPA as applied to the Bureau's livestock grazing programs. Thus, the draft states that "the allocation of available forage is related directly to MFP decisions.... This forage resource ... is therefore not addressed within the context of an alternative." (p. VII-2.) This statement makes clear the fact that the "alternatives" considered herein are merely alternative ways of carrying out the proposed forage allocation, instead of being alternatives to the proposal.

NEPA, however, explicitly requires the detailed consideration of alternatives to the proposed action. The arbitrary restriction of alternatives considered in this document to those which approximate as closely as possible the forage allocations made in the applicable MFP is a clear violation of NEPA. The mere fact that the Bureau has determined that this and all grazing EIS's will deal with AMP's, rather than MFP's, does not mean that the basic forage allocation of the MFP's can forever be insulated in all respects from "the 'finely tuned' and 'systematic balancing analysis' mandated by NEPA." NRDC et al v. Morton et al., 388 F.Supp. 829,840 (D.D.C. 1974).

As indicated above, one of the basic questions to be addressed by these and all other grazing EIS's is whether any level of livestock grazing should be allowed. Accordingly,

the draft EIS must consider as alternatives, levels of livestock grazing which are different than the level involved in the proposed action. In addition, it must contain "a concise statement of the merits and demerits of each [alternative] as compared with" the proposed action as is required by NEPA. NRDC v. Calloway, 8 ERC 1273, 1284 (2d. Cir. 1975).

Thus, for example, we believe that the draft should consider the alternative of eliminating grazing on all lands of the study area. The rationale presented by the pre-draft for not including this alternative - i.e., the facts that grazing was eliminated from two areas and that "no grazing areas [will] occur within nearly all allotments" under the proposed action and the two "alternatives" considered-is clearly not persuasive. (p. VIII-2).

Of course, no one really expects that the Bureau will totally eliminate livestock grazing in the Tonopah area.*/ Nonetheless, it is useful to consider this alternative because, if properly analyzed, it will provide essential, site-specific environmental information against which to measure the results of all other alternatives considered, including the proposed action. Similarly, we believe it would be useful to consider reducing livestock grazing 50% in the area.

The final point we would like to make about this section of the preliminary draft is that,quite apart from the fact that the "alternatives" considered were selected pursuant to an incorrect criterion, the fact that only two alternatives were discussed at all suggests on its face, a failure to recognize

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*/ In this connection, we note that the discussion of the second alternative indicates that its implementation would not be "practicable". (See, e.g., pp. VIII-25, VIII-38.)

the crucial significance of this part of the NEPA process. As we pointed out in our outline on the contents of the grazing statements, NEPA requires a consideraton of precise, particularized alternatives for specific proposed grazing areas, in addition to an analysis of generalized alternatives, such as "no action." Accordingly, we urge you to ensure that the formal draft considers a broader range of alternatives than were considered in this document.

In conclusion, we thank you again for this opportunity to review the Tonopah preliminary draft. As you requested, we have mailed the document back to you under separate cover. We hope that it will be revised, as described above, prior to its publication as a draft environmental impact statement. If you have any questions about our comments, we hope you will not hesitate to contact us.

Sincerely,

Johanna H. Wald

Johanna H. Wald, Esq.

Roger Beers cc

Roger Beers, Esq.

JHW/RB:cec

encl

cc: George Lea
Assistant Director, BLM
no encl

Natural Resources Defense Council attached a 45-page set of comments on the Challis Planning Unit. Those comments were written August 7, 1976, and were signed by Johanna H. Wald and Roger Beers.

Natural Resources Defense Council, Inc.

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January 7, 1977

George Turcott, Associate Director
George Lea, Deputy Assistant Director
for Resources
Kay Wilkes, Chief, Division of
Range
Dave Walter
Bureau of Land Management
Department of the Interior
Interior Building
Washington, D.C. 20240

Gentlemen:

At our meeting in San Francisco on December 14, 1976, and again in our telephone conversation on January 5, 1977, NRDC and BLM representatives have discussed the following issues: (1) the Bureau's plans with respect to the Challis impact statement; (2) the contents of the livestock grazing environmental impact statements ("EIS's") in general, including questions raised concerning the kinds of alternatives which each should consider and the necessity of each to analyze the capacity of proposed allotments to support any level of livestock grazing; and (3) the Bureau's proposal to make substantial changes in the current schedule for preparation of grazing EIS's which was approved by Judge Flannery in his final judgment in NRDC et al. v. Morton et. al., 388 F. Supp. 829 (D.D.C. 1974).

The purpose of this letter is to set forth our concerns with respect to each of these issues, as well as to indicate the relationships between them in the hope that we will be able to reach a mutually satisfactory agreement on all. Our views on these matters may be summarized as follows, and are discussed in detail following this summary.

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(1) The Challis statement.

According to George Lea, the final version of the Challis statement will be submitted to the Council on Environmental Quality on Monday, January 10, 1977, in accordance with the Bureau's second proposed notice of deviation from the EIS schedule. Based on our review of the draft and statements by Bureau personnel concerning the final EIS, it is unlikely that the final will satisfy the requirements of the National Environmental Policy Act of 1969 ("NEPA") as applied to the BLM's livestock grazing programs. Indeed, the "notice to reviewers" which will be included in the statement, and which was read to us over the telephone, virtually admits that the document is inadequate under NEPA. Moreover, when Director Berklund spoke with Johanna Wald in Reno, Nevada, on November 9, 1976, he voiced his extreme displeasure with the quality of the document and stated that it would be "lousy."

Unquestionably, both NEPA and Judge Flannery's decision require the preparation and publication of an adequate final EIS on livestock grazing in the Challis Unit. See, e.g., 388 F. Supp. at 841. Issuance of an inadequate final statement, with or without the notice which was read to us over the telephone, will not satisfy this requirement. Under the circumstances, it is clear that the BLM must either rewrite the entire statement or prepare a supplement to it, which remedies the defects of the final version. In the notice read to us, the Bureau fails to make any commitment to do either. In addition, the notice fails to establish a time frame in which the requirements of NEPA will be met.

changed

NRDC and the other plaintiffs in the grazing suit will be compelled to return to court to obtain a judgment declaring the Challis EIS inadequate and establishing a schedule for issuance of a revised version or a supplement, unless we can reach an agreement with the Bureau on the precise course of action which the agency will follow with respect to the statement after January 10, 1977.

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(2) The contents of grazing EIS's.

If we are unable to reach agreement with the BLM, litigation challenging the adequacy of the Challis EIS would be based on the following grounds, among others: (1) the failure of the EIS to consider meaningful alternatives to the amount of livestock use contemplated in the proposed action, and (2) its failure to analyze the capacity of any of the land in the Unit to support the levels of livestock use involved in the proposed action and any of the "alternatives" involving grazing which the statement considers.

We have already filed comments on the Challis draft which discuss these problems in detail. These same defects exist in the draft EIS on grazing in the San Luis, Colorado Resource Area and the preliminary draft EIS on the Tonopah, Nevada Study Area, both of which we recently reviewed. Our comments on the San Luis draft are set forth below as a further illustration of our concerns. Again, it is our hope that we can reach agreement with the Bureau on the manner in which these essential elements of future grazing EIS's will be handled.

(3) The proposed changes in the EIS schedule.

The Bureau has asked us to agree to substantial changes in the existing schedule for preparation of grazing EIS's. These changes involve alterations in the boundaries of areas to be covered by future statements, as well as a significant reduction in the total number of statements that will be prepared over the next 13 years. We are primarily concerned, however, about the extent to which the proposed schedule differs from the existing schedule in both the number of statements that will be produced and the acres of Public Lands that will be covered thereby in 1979 and 1980. Under the proposed schedule, we would have to wait seven years, until Fiscal Year 1983, for the cumulative total of acres covered by final statements to equal the amount which would be covered in only five years if the current schedule is followed. The preliminary responses of our clients in the grazing suit to the proposed schedule indicate that they share this concern. If this problem can be alleviated, we would expect that an agreed-upon schedule

would be part of the same agreement resolving the issues described above.

DETAILED DISCUSSION OF THESE ISSUES

A. The Challis Statement

The final version of the Challis EIS has not been released as of this date, but there is every indication that the final has not remedied the serious deficiencies in the draft. Indeed, we wonder whether the Bureau's lawyers would even dispute the inadequacy of the Challis statement, if a suit were filed challenging its sufficiency as a matter of law. If this did become an issue, however, perhaps the most compelling evidence of the document's failure to meet applicable legal standards would come from the Bureau itself -- e.g., the "notice to reviewers," Director Berklund's statements about the EIS, and the statements of other Bureau employees about its defects. In addition, the inadequacy of the draft EIS is attested to by the comments of most of the individuals and organizations who reviewed it, including professional range scientists and the Council for Agricultural Science and Technology.

As indicated above, NEPA requires federal agencies to prepare adequate analyses of the environmental impacts of major actions proposed by them, and alternatives thereto. In NRDC v. Morton, the Court found that the Bureau's yearly issuance of domestic livestock grazing permits was a major federal action which "clearly may have a severe impact on local environments." 388 F. Supp. at 834. Accordingly, the Court ordered the BLM to "prepare, publicly circulate and consider" site-specific environmental impact statements on grazing "which satisfy the National Environmental Policy Act in all respects". Id., at 841 (emphasis added) .

The Bureau surely cannot dispute its obligation to prepare adequate final EIS's. Indeed, in its request for additional time to prepare the final version of the Challis statement, the Bureau represented that this time was necessary to enable the EIS "to fully comply with the requirements of NEPA. . . ." Second Notice of Proposed Deviation. p. 3. Moreover, Assistant

Director Koenings, in his affidavit in support of the extension, not only acknowledged the need for the final statement to "fully" comply with NEPA, but stressed the fact that "it is important that this initial EIS . . . be properly prepared to provide a basis for future livestock grazing EIS's. . . ." (Koenings affidavit, p. 2). Unfortunately, however, according to Bureau reports, it appears unlikely that the statement will meet the requirements established by Judge Flannery's opinion.

It is beyond question that the mere inclusion of the "notice to reviewers" which was read to us will not remedy any defects. Moreover, the fact that this disclaimer promises that no final action with respect to the proposed grazing management will be taken until additional data is obtained, ignores Judge Flannery's explicit requirement that the environmental impacts of existing grazing be adequately analyzed in the final EIS's filed on schedule. Final Judgment (June 18, 1975), § 7, pp. 3-4.

NEPA mandates that "major federal actions" be taken only when it can be assured that the officials responsible for deciding whether to proceed have considered all relevant factors. The implementation of major action prior to the completion of an adequate environmental analysis makes a "'mockery' of the procedural mandates of NEPA." NRDC v. NRC, 8 ERC 2065, 2079 (2d Cir. 1976). As Judge Flannery's final judgment makes clear, existing livestock grazing activities -- i.e., the continued issuance of permits for livestock grazing at current levels and pursuant to current management -- are major federal actions. Hence, a promise not to implement proposed management actions while at the same time continuing "current" management activities in no way meets the requirements of Judge Flannery's order.

It is clear as a matter of law that inadequate EIS's must be rewritten or supplemented prior to the taking of a major federal action. See, e.g., NRDC v. NRC, supra, 8 ERC at 2076; NRDC v. Morton, 377 F. Supp. 170, 172 (D.D.C. 1972).

NRDC v. NRC, supra, is directly applicable to the instant situation. The Nuclear Regulatory Commission had decided to prepare an EIS on the wide-scale use of mixed oxide fuel in nuclear reactors. Although the draft version of the statement

constituted a "herculean undertaking," it was "generally conceded" to be inadequate. 8 ERC at 2069. Accordingly, in addition to the preparation of a final statement, the Commission represented that it would prepare a supplement to the original draft. Id., at 2070. Prior to the issuance of the final or supplement, however, it proposed to issue interim licenses for certain facilities. The court held that the interim licensing proposed by the Commission constituted a major federal action (Id., at 2079) and that the draft constituted "a legally insufficient environmental impact statement". Id., at 2077 . Accordingly, it refused to allow the interim licensing prior to the issuance of an adequate environmental analysis.

If an agreement could be reached on the preparation of a supplement to the Challis EIS on a timely basis, we would not suggest that livestock grazing must be halted in the interim -- although that is clearly an available remedy in court under NRDC v. NRC. For present purposes, the point is simply that it will not suffice for the Bureau to say that, at some unspecified date in the future, it will determine whether or not to prepare a supplement to the Challis EIS. Accordingly, we propose that the Bureau agree that, by a certain date, it will issue a supplement which will remedy the defects of the final statement in the particular respects discussed below.

B. Contents of EIS's: Alternatives And Grazing Capacities

The opinion in NRDC v. Morton illustrates clearly the court's recognition of the environmental problems associated with livestock grazing on the Public Lands, its concern for the resources involved and its conviction that the Bureau has failed to fulfill its obligation to properly manage these lands and their resources.

Against a background of substantially uncontroverted evidence detailing the "damage that has occurred from overgrazing and improper land management," even where the Bureau's land planning procedures have been followed (388 F. Supp. at 834), the court specifically noted that "the crucial questions"

raised by the lawsuit "are whether [resource deterioration resulting from grazing] can be allowed to continue and whether it will be exacerbated by continued grazing." Id., at 840, note 22 (emphasis added).

Accordingly, the court ordered the BLM to prepare legally sufficient environmental statements which discuss in detail "all existing or proposed livestock grazing," and "all reasonable alternatives thereto." Final Judgment, pp. 3-4. In so doing, the court stated that each of the required statements would have to provide the local decision maker with the data necessary to analyze "all of the specific and particular consequences of" licensing livestock to graze a given area as well as "the alternatives available to him." 388 F. Supp. at 838-839. The court stated that the statements must allow "those who are not part of the decision-making process to adequately evaluate and balance the factors on their own." Id., at 839.

As Judge Flannery noted, two issues are involved in the application of NEPA to the Bureau's grazing programs: whether the continuation of livestock grazing will adversely impact the resources of a given area, and whether any of the adverse impacts of grazing, with or without mitigation, will be allowed to take place. Accordingly, EIS's on grazing must supply information designed to allow both decision-makers and the public to answer two questions: (1) How much grazing, if any, should be permitted in the areas involved? And, (2) How should the amount permitted be managed? In order to answer these questions, the EIS's must, above all else, contain a legally adequate analysis of properly selected, meaningful alternatives to the amount of grazing involved in the proposed action, as well as a rigorous assessment of the capacity of each proposed grazing area to support that use at any given level.

1. Alternatives.

Consideration of alternatives has been referred to as the "linch-pin" of the environmental assessment procedure mandated by NEPA. Monroe County Conservation Council v. Volpe, 472 F.2d 693, 697-698 (2d Cir. 1972). The courts have consistently recognized the overriding importance of this element of the

NEPA process. They have uniformly disapproved of impact statements in which the consideration of alternatives is little more than a pro forma exercise or post-hoc rationalization of decisions previously arrived at in the absence of the environmental impact analysis required by NEPA. They have insisted that statements contain the "detailed and careful analysis of the relative environmental merits and demerits of the proposed action and possible alternatives" that NEPA was expressly intended to require. NRDC v. Calloway, supra, 8 ERC at 1283.

In his opinion in NRDC v. Morton, Judge Flannery also recognized the importance and necessity of the consideration of alternatives to existing and proposed levels of grazing. He noted, for example, that the programmatic EIS

> "in no way insures that the decision-maker considers all of the specific and particular consequences of his actions or the alternatives available to him. The proposed [programmatic] EIS does not provide the detailed analysis of local geographic conditions necessary for the decision-maker to determine what course of action is appropriate under the circumstances." 388 F. Supp. at 838-839

Moreover, he specifically found that the Bureau's grazing procedures, as revealed in licenses, the Manual and the Range Code, "do not . . . provide the local decision-maker with the data necessary to analyze the alternatives open to him and their consequences." Id. at 839. (Footnote omitted).

However, the San Luis draft, like the Challis draft which preceded it, fails to analyze the kinds of alternatives required by NEPA and by Judge Flannery's decision. The proposal analyzed in the San Luis draft is the licensing of livestock grazing at the level of 34,626 AUMs on certain lands in Colorado. The alternatives to this proposed action which the draft considers include the elimination of livestock grazing and six others, each of which involves more than 31,000 AUMs of livestock use. Although several of the alternatives involving grazing which are examined in the draft -- particularly, the wildlife effective, watershed effective and balanced multiple use management alter-

natives -- purport to embody concepts which might profitably be considered in all grazing statements, the draft distorts these alternatives by assuming as a given, in each instance, continued grazing approximating current levels. As George Lea so aptly put it in our telephone conversation, they are in fact alternative ways of carrying out the proposal and not alternatives to the proposed action.
and constitutes a blatant disregard for NEPA's goals and requirements.

The San Luis draft's treatment of the alternatives is inadequate on its face for several reasons. First, the document fails to demonstrate that the actual management "alternatives" which are considered were, in fact, selected solely to achieve the expressed objective(s) and constitute all the actions necessary to achieve the aims of each. For example, the wildlife effective alternative involves allocating only 871 more AUM's for wildlife than are allocated under the proposed action. Like that action, this alternative would actually result in more AUMs being allocated to livestock than were actually used in 1975. In addition, while the alternative contemplates the revision of 27 AMPs "for resolution of adverse impacts and to further enhance the various wildlife resources," (Alternative E, p. 1),it considers no changes in any of the remaining 138 areas and associated management actions involved in the proposed action.

The draft purports to set forth the criteria used to determine which AMPs needed revision to achieve the stated objective -- e.g., season of use, class of livestock and amount of grazing. However, it makes no attempt to apply these criteria to any of the allotments in the San Luis Area, including those selected for revision. It does not explain how the various percentages by which livestock grazing would be reduced in the selected allotments were arrived at. Nor does it explain why other discrete alternative actions which would minimize the adverse impacts of grazing on wildlife, such as elimination of fences or implementation of different grazing systems, were not also considered as part of this alternative. In sum, the draft requests readers to believe in the effectiveness and comprehensive

nature of the actions proposed in this alternative, without demonstrating that such belief has a rational basis.

Quite apart from the fact that such explanations are required by law, they are necessary for an understanding of the relationship between all of the alternatives considered in the draft. Unfortunately, the draft lacks "a concise statement of the merits and demerits of each [alternative] as compared with" the proposed action as is required by NEPA. NRDC v. Calloway, supra, 8 ERC at 1284.

With the exception of an alternative dealing with elimination of grazing entirely, all of the alternatives involve more than 31,000 AUMs of livestock use, and most of them involve an increase over the estimated actual grazing use of 1975. As was the case with the alternatives considered in the draft version of the Challis statement, a comparison of the livestock forage allocations involved in the various alternatives considered here suggests that the desire to maintain livestock use at, but preferably above, current actual use levels played a significant part in their development. This comparison suggests that the alternatives presented in this draft are not, in fact, what they purport to be. In other words, it suggests that the wildlife effective alternative, for example, is not an alternative designed to manage the San Luis Resource Area primarily for optimum wildlife production, but rather that it is an alternative designed to maximize wildlife given a certain amount of livestock grazing use.

At our December 14, 1976 meeting, BLM representatives initially stated that the Bureau intended to consider as alternatives only those which embodied the land use allocations already made in the MFP. Any arbitrary restriction of alternatives considered in this and any other EIS on grazing to those which approximate as closely as possible the forage allocations made in the applicable MFP is a clear violation of NEPA. The mere fact that the Bureau has determined that this and all grazing EIS's will deal with the AMP's, rather than MFP's, does not mean that the basic forage allocation of the MFP's can forever be insulated in all respects from "the 'finely tuned' and

'systematic balancing analysis' mandated by NEPA." NRDC v. Morton, supra, at 840.[1/]

The Bureau has indicated that it may be willing to include alternatives in each EIS which would consider respectively 50 and 25 per cent reductions in current levels of grazing. This approach may afford a basis for resolving this issue between us assuming that in other respects the consideration of alternatives is not infused with the assumption that current grazing levels must continue.

2. Grazing Capacities.

It is clear that the impact statements must present the data available about each given area, assess the reliability of the data and analyze, in a comprehensive manner, what that information indicates about the uses and management of the resources involved, including how forage allocations among competing uses should be made. Like the Challis draft, the San Luis draft fails to perform this task.

For example, the fact that the Bureau proposes to use grazing to improve the current condition of the resources of the area does not relieve the Bureau of the obligation to explain or analyze the decision to use grazing as a management tool. The validity of this decision, and in particular, the capacity of these lands to support grazing at any level cannot be assumed; nor can it be inferred from the benefits which are predicted to result from the proposed grazing or from the objectives of the MFP.

Similarly, the fact that grazing was eliminated from nine allotments by the AMP authors, despite MFP recommendations to the

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[1/] It should be noted that the "no grazing" alternative is useful because, if properly analyzed, it will provide essential baseline environmental information against which to measure the results of all the other alternatives considered, including the proposed action. Of course no one really expects the BLM to totally eliminate grazing entirely in the San Luis Resource Area or any other of the broad areas to be covered by the forthcoming EIS's. Hence, the San Luis EIS really considers no practical alternatives at all to the basic level of grazing in the proposed action.

contrary, as the result of "a closer examination of the allotments with respect to steepness of slope, wildlife needs and erosion condition of the soil surface," (p. I-84), does not mean that the Bureau is entitled to ask readers of this statement to assume that grazing is a proper use of the remaining allotments and that the proposed grazing levels and systems are also proper. A rigorous analysis of the capacity of a particular area to support livestock grazing at the proposed level is essential to the preparation of an adequate EIS. The statement must demonstrate that the proposed allocations of forage to livestock are in fact proper. As stated in the Bureau's Instruction Memo # 75-407, "Updating Range Management Policy Guidance," "Initial stocking rates are of the utmost importance and must not exceed the existing livestock grazing capacity of the allotment."

However, the draft never analyzes the capacity of any of the areas, given their resources and their current conditions, to support the levels of livestock use or the intensities involved in the proposed action or any of the six alternatives involving grazing which it considers. For example, the draft never analyzes the capacity of the proposed Ra Jadero Canyon allotment to support 621 AUM's of cattle use (p. I-13), given the facts that its current erosion condition is "critical," that 4/5 of its range resource is in fair condition, and that one-fifth is in poor condition. (pp. I-33, II-76). In addition, the draft analyzes the capacity of the resources of this allotment to support the increased intensities of use that will result from the three pasture rest-rotation grazing system that is proposed for it. Similarly, although the proposed Big Horn Creek, Railroad and Llano Allotments are in critical erosion condition (pp. I-34-35) and the total acreage in each is in poor vegetative condition (p. II-76), the ability of these allotments to sustain the proposed grazing use is never analyzed. Here too, the fact that the proposal involves reducing livestock use on the Railroad and Llano Allotments does not mean that the actual allocations need not be explained and that the existence of the allocated forage need not be demonstrated.

An analysis of the capacity of an area to support domestic livestock grazing is also necessary to permit an understanding of why particular grazing systems were selected for the areas involved. The draft seems to recognize its obligation to present an explanation of this process. (p. I-39). However, it merely summarizes the "major points considered in selecting" the various systems (Id.), instead of applying those points to each specific area.

In addition, the kind of analysis referred to above is an essential adjunct to the kind of analysis of the applicable MFP which is required by NEPA. Unfortunately, such an analysis is not contained in the draft. As indicated above, the Bureau cannot ask readers to assume that the decision to use grazing as a management tool is correct. Moreover, as we have previously pointed out, all grazing EIS's must contain a description of the goals, objectives and constraints of the applicable MFP. See, e.g., our comments on the Challis Draft EIS, pp. 6-9. The instant draft purports to do this, and in fact its discussion of the MFP represents an improvement over the discussion contained in the Challis draft. However, it fails to contain the kind of detailed analysis of the MFP that is necessary for an understanding of the land allocations made therein and their validity.

For example, the draft summarizes the "grazing management objectives and constraints" used in the preparation of AMP's. However, even where this summary indicates that the applicable MFP made specific recommendations concerning particular allotments, the draft does not identify those allotments. (p. I-83.) Similarly, it identifies "general goals for grazing management" (pp. I-83-84), but it does not identify the site-specific goals for each allotment that were developed in the MFP's.[2/] Finally, the draft does not relate these goals, objectives and constraints to the existing resource conditions of the Resource Area.

[2/] The draft implies that Table 1-4 contains these goals as they were determined by the MFP's. If this implication is in fact correct, it should be affirmatively stated.

As indicated previously, the fact that the draft concedes that "some deviations from the grazing recommendations" contained in the MFP's were made during preparation of the AMP's (p. I-84), does not mean that there is no necessity to demonstrate the rationality of the unchanged decisions in the site-specific manner described above.

Similarly, it should be noted that it is not satisfactory to merely assert, as this draft does, that certain results can be expected to result from adoption of the proposed systems or alternatives thereto. Even assuming that the draft contains sufficient, accurate baseline data about the resources of the instant area to enable reliable predictions to be made about the impacts of alternative grazing management actions, the statement must describe the precise procedures which were used to produce the results it claims will follow the implementation of any of the various actions. For example, the draft refers to the fact that 10 AMPs already exist in the San Luis Resource Area, and asserts that "trend analyses and range studies being conducted" on these allotments "form the basis for calculating the vegetative changes predicted as a result of the proposed action." (unnumbered insert for p. III-19) However, no specific information about these studies, such as the length of time they have been conducted, is supplied. None of their specific findings are reported and no description of the way in which those findings were utilized is given. Instead, the draft merely asserts that the cumulative effects of the proposed program will include a 350 percent increase in range in good condition and a 5-19% increase in vegetative cover. (p. III-20) While we would hope that this result would occur if the proposed program were implemented, the fact remains that the draft must demonstrate the likelihood of its occurrence, rather than ask the public to believe an unsupported assertion.

This same criticism is, as indicated, applicable to the results predicted for all of the alternatives considered in the draft. The discussion of the impacts of eliminating grazing, for example, contains no analysis of the methods used to determine

the predicted changes in sediment yield and in range condition. Indeed, the discussion of the environmental impacts of this alternative consists almost entirely of generalities or unsupported assertions, with no references to specific land areas. Although a few studies are cited to demonstrate the beneficial effects of livestock grazing as a tool for "wildlife production" and for fire suppression (p. VIII-23) no attempt is made to relate the specific findings and conditions of these studies to the environment of the San Luis Resource Area. Moreover, inasmuch as the draft predicts that only minimally beneficial effects will result from eliminating grazing, the Bureau must recognize that it bears a heavy burden to justify this prediction. Cf. the discussion of this alternative in the Challis draft and in the Second Pre-Draft Programmatic Statement at pp. VIII-15-17.

Ever since our investigation of the Bureau's livestock grazing programs began, more than 4 years ago, we have consistently challenged the agency's refusal to provide the kinds of data and analyses described above -- i.e., data and analyses which would allow field personnel and members of the public to evaluate actual, on-the-ground impacts of proposed grazing decisions and alternatives thereto. The entire purpose of our lawsuit against the Bureau was to obtain this kind of full and comprehensive analysis of resource conditions and the impacts of grazing thereon in every area in which grazing is proposed. Judge Flannery agreed with our contention that the Bureau was obligated to prepare such analyses. We do not doubt that he would agree with out contention that neither the Challis statement nor the San Luis draft fulfill the requirements imposed by NEPA and by his opinion and final judgment.

As indicated above, we are prepared to go back to court, if we must, to obtain the kind of statement which the Bureau is require to prepare. Rather than do that, however, we would prefer to resolve these matters by an agreement with the Bureau which would ensure that all of the impact statements on grazing which it prepares, including the Challis statement, meet applicable legal standards.

C. Proposed Agreement.

An agreement resolving these issues would have to contain the following terms:

(1) The BLM would agree, by a specified future date, to issue a supplement to the Challis statement which will remedy the defects of the final version and which will be circulated for public comment and considered as required by NEPA.

(2) The BLM would agree to consider in a Challis supplement certain alternatives to the proposed action, including alternatives designed specifically to analyze the impacts of different levels of livestock grazing use of available forage in the Unit. These alternatives would be set at specified levels of current grazing use -- e.g., 50 percent and 25 percent.

(3) The BLM would agree upon the manner in which the additional data to be acquired for Challis would be used in the supplement. In this regard, the Bureau would agree (a) that the capacity of proposed allotments to support the level of livestock use involved in the proposed action and alternatives thereto will be analyzed in site-specific terms; (b) that the data utilized in such determinations and all available information relevant thereto, including for example, adjudicated grazing privileges and amounts and types of non-use involved will be specifically identified, by proposed allotments, and the reliability thereof will be assessed; (c) that the procedures used to predict the results of implementing any level of use will be fully described and their adequacy analyzed, and (d) that the specific, applicable goals, objectives and constraints of the MFP will be set forth, and that any relevant resource data which is lacking, the methods which will be used to obtain them and the impact which their unavailability has for optimum decision-making will be described.

(4) The BLM would agree that the standards enunciated for the contents of the Supplement to the Challis statement would also apply to all future grazing statements and that they will serve as the basis for the formulation of comprehensive formal guidelines or regulations concerning the contents of such statements.

If the above matters can be agreed on, we would recommend strongly to our clients that they agree to the Bureau's proposed changes in the current boundaries and schedule for EIS preparation, except for the substantial slippages contemplated by the schedule in FY 1979 and 1980. However, while we would prefer that the Bureau complete EIS's through FY 1981 on approximately the same amount of acreage required in the original schedule, a compromise of the differences between the original and proposed schedules may be possible.

We appreciate your consideration of the issues set forth herein. We are hopeful that this letter will serve as the basis for a mutually acceptable resolution of the differences between us. We look forward to your responses at the meeting scheduled for next Wednesday.

Very truly yours,

Johanna H. Wald

Johanna H. Wald, Esq.

Roger Beers

Roger Beers, Esq.

lr

cc: Hugh Garner, Associate Solicitor,
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Pacific Legal Foundation

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January 10, 1977

Mr. E. I. Rowland
State Director
Bureau of Land Management
Room 2008, Federal Building
300 Booth Street
Reno, Nevada 89509

Dear Mr. Rowland:

Enclosed please find our comments regarding the Tonopah Study Area Grazing Environmental Statement.

As per our telephone conversation of this date, we are filing our comments within the one day extension granted by your office.

Sincerely,

Elleene A. Kirkland

ELLEENE A. KIRKLAND
Attorney

Enclosure

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COMMENTS OF PACIFIC LEGAL FOUNDATION

ON PRELIMINARY DRAFT:

TONOPAH STUDY AREA GRAZING

ENVIRONMENTAL STATEMENT

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COMMENTS OF PACIFIC LEGAL FOUNDATION

ON PRELIMINARY DRAFT:

TONOPAH STUDY AREA GRAZING

ENVIRONMENTAL STATEMENT

The Pacific Legal Foundation (PLF) is a nonprofit, tax-exempt public interest legal corporation with offices in Sacramento, California and Washington, D.C. Among the members, supporters and contributors of Pacific Legal Foundation are range scientists, livestock permittees, consumers and others who are vitally interested in the preliminary draft of the Tonopah Study Area Grazing Environmental Statement (hereinafter referred to as preliminary draft).

The Bureau of Land Management's (BLM) preparation of the preliminary draft hereinunder review was the direct product of a court ruling that the National Environmental Policy Act (NEPA) is applicable to BLM's public lands management program. The preliminary draft prepared by BLM does not, however, comply with the requirements of NEPA. PLF offers these comments because BLM has failed to adequately consider alternatives to the proposed project. Such failure has prevented BLM from engaging in the informed decision making process that is mandated by the provisions of NEPA. Further, PLF offers these comments in an attempt to fill the void created by an inadequate discussion relating to the socio-economic impacts stemming from the implementation of the proposed project. This includes not only the impact on the

rancher, but also the impact on the beef consuming public in general. Thus, PLF submits the following comments on behalf of those who will be most greatly impacted by the proposed BLM project--the livestock grazing permittee and the American consumer.

A fatal defect in the preliminary draft is its failure to assess in adequate terms the economic impact on livestock permittees which will stem from implementation of the proposed plan.

The livestock industry is an integral segment of the Tonopah Study Area economy. The importance of this industry has been recognized by BLM (VI-9). In the Tonopah Study Area there are 28 ranching operations licensed to graze livestock on public lands (II-229). The cattle ranches in the Tonopah area are generally large operations which are heavily dependent on national resource lands (NRL) (II-232). Most of the permitted ranching operations in the study area depend on NRL for all, or a part, of their year-round grazing operation (II-235). Table II-44, Dependence of Ranching Operations, displays this dependence for each user. In terms of the economic gain derived from these operations, the general situation is one of marginality (that is, of a continuous threat of economic collapse) for <u>over half</u> of the ranch operations. For these ranchers, low beef prices, increased grazing fees, additional capital investment costs, etcetera, constitute a serious threat to the survival of the ranch operations (II-266).

Considering the dependence of these operations on NRL, and the marginality of their operations, the discussion of the socio-economic impacts stemming from the implementation of the proposed grazing management plan is woefully inadequate.

Adverse impacts to individual operators as a result of the proposed 20 percent reduction in grazing use on NRL, although variable, are clear. They vary according to the amount of decrease and also with the degree of dependence on NRL, availability of other grazing land, and financial status (IV-2). These adverse impacts must be evaluated and documented.

Of immediate concern to the ranchers, and the beef consuming public, is the reduction in livestock weight that is to be expected from the implementation of the proposed plan. The preliminary draft recognizes this adverse impact (III-186), but fails to discuss the reduction in weight in quantitative terms and the economic impact on rancher and consumer stemming therefrom. How much weight loss can be expected? What will the dollar loss to the rancher be? How much will this increase the cost of beef for the consumer? These questions must be addressed in order to adequately inform the public of the impacts stemming from the implementation of the proposed program. BLM, however, tries to ignore the problem of weight reduction, or at least tries to diminish the importance of the problem, by suggesting that improvement of the forage will alleviate the problem of weight loss. But, BLM does not or cannot provide documentation that weight gains will occur as a result of implementation of the

proposed plan. In fact, BLM speaks of weight gains in terms of possibilities only (II-186). This is a small consolation for a rancher who is already barely able to survive.

BLM has also failed to address the socio-economic impact stemming from the costs which are necessary to implement the proposed project. BLM has been quick to recognize that the ranching community will be expected to carry out much of the work the proposal calls for (III-195). However, BLM does not provide an adequate discussion of where the additional funds to defray the costs of implementation are going to come from. For those ranchers who are operating on a marginal basis, there simply is no surplus of funds with which to hire the additional seasonal help that will be necessary on the ranch to move cattle and to maintain the proposed improvements. The preliminary draft recognizes that mere maintenance of improvements and movement of cattle could add 35 to 45 man-months of seasonal and/or permanent employment to these ranching operations per year (III-195). But nowhere does BLM discuss how the costs of these additional man-months will be met. For the preliminary draft to withstand scrutiny, such issues must be dealt with. While BLM has been unable to quantify the impacts in economic terms, BLM has made a definitive statement relative to mitigation of the adverse impacts. Thus, although BLM has included provisions in the preliminary draft for mitigation of adverse impacts ranging from visual and cultural resources to endangered plantlife, BLM has made clear its intention not to mitigate any adverse economic

impact to the ranchers that may result from the plan. As the preliminary draft states, the impacts to ranchers cannot be mitigated unless the federal government is willing to subsidize the small operator that may go out of business. This is unlikely (IV-11). One cannot help but wonder why funds are available to mitigate other imacts of the project, but unavailable to those who will be most seriously impacted.

Perhaps the greatest weakness of the preliminary draft is its failure to discuss the negative impacts in absolute terms. Impacts are discussed instead in terms of more possibilities. For instance, the preliminary draft states that the implementation of the proposed plan, which is supposed to improve range land conditions, should be reflected in the allowance of additional animal unit months (AUM's) of forage. This should, it is stated, result in increased herd size generating additional revenues to individual ranch operations (III-198). Is BLM so unsure of its proposed project that it cannot state that the program will be reflected in the allowance of additional AUM's and that it will result in increased herd size. If BLM is going to make such assertions, documentation and substantiating data must be provided. Otherwise, the statements are meaningless and entitled to no weight in the overall evaluation of the project. The ranchers who are already operating on a marginal basis cannot be dismissed so lightly. A 20 percent reduction in the availability of public lands for grazing purposes under the proposed plan will have a tremendous impact on their ability to continue operations. If

this 20 percent reduction will ultimately result in some benefit to the ranchers through the allowance of additional AUM's and increased herd size, the ranchers obviously will welcome it. They wish only to see such assertions documented with supporting facts. So far, BLM has provided none. BLM continues, however, to make assertions and predictions. BLM anticipates that herd sizes will increase by 5,587 head upon the fifteenth year after the proposal is initiated (III-199). And, BLM anticipates that this increase in size could also be expected to increase revenues by $500,000 per year (III-200). Again, we are speaking in terms of possibilities--shoulds and coulds. This is small comfort to the rancher. Documentation of any fluctuation in the size of the herds that will result from the implementation of the proposal must be included in the draft. An increase in revenues amounting to $500,000 per year after 15 years will obviously be beneficial to the ranchers, even though 15 years is a long time to wait. However, before relying on this anticipated increase in revenues, it is essential that the ranchers be provided with supporting empirical data. And for the sake of accuracy, this figure should be offset against the losses that will be incurred during the initia years of implementation. In other words, what will the ultimate net gain, if any, to the rancher be.

In light of the grave economic consequences that will result from the implementation of the proposed plan, it would be expected that BLM would clearly document the need for the program. And similarly, it would be expected that BLM would clearly document

how this program will achieve the desired goals. Unfortunately, the same lack of baseline data and supporting facts continues throughout the preliminary draft. That portion of the preliminary draft wherein the condition of the range is discussed consists of nothing more than a conclusion. This is totally inadequate. BLM has not conducted the necessary studies over the required period of time to determine either the recent trends in range condition or what programs are necessary to improve range condition. Accurate range trend estimates are unquestionably the most critically needed information. BLM has not, however, utilized trend data in its formulation of the proposed project (II-79). It appears that BLM has utilized one time observations only as a basis for its conclusions. This is not an empirically sound method for studying range conditions. Thus, what is contained in the preliminary draft is a mere conclusion that range condition is poor. There is no documenting data, however, to explain the reasons for this condition. In the absence of a scientific showing that the trend is toward continued deterioration and that present livestock grazing patterns are responsible for the deterioration, the preliminary draft is inadequate. It is necessary that BLM systematically set forth the basis of its conclusion that grazing, as it occurs today, is responsible for the deteriorated range condition. BLM simply has not come up with the scientific data to support the conclusion that present livestock grazing intensity is continuing to cause a deterioration in range condition. Nor has ample data been presented to indicate that implementation of the program will improve range conditions.

Finally, it appears that the preliminary draft was prepared as a rationalization for a program that had already been decided upon by BLM. Evidence of BLM's predisposition to the proposed project is clearly revealed by its failure to consider the no action alternative as a viable alternative. Even though there has been no evidence produced which established that livestock grazing as it exists today is responsible for the current range condition; and even though there has been no evidence produced that current livestock grazing patterns even contribute to the deteriorated range condition, BLM has dismissed without adequate discussion the feasibility of continuing present livestock grazing patterns. In order to comply with the mandates of NEPA, all reasonable alternatives must be discussed. And such alternatives must be discussed in such detail so as to provide the decision maker with sufficient information to make a reasoned selection among the available alternatives. This has not been done.

Thus, in the final analysis, the preliminary draft suffers principally from a failure to adequately discuss the socio-economic impacts stemming from implementation of the proposed plan, a failure to document the conclusions set forth therein, and a failure to adequately discuss alternatives to the proposed plan.

DATED: January 10, 1977.

Respectfully submitted,

RONALD A. ZUMBRUN
RAYMOND M. MOMBOISSE
ELLEENE A. KIRKLAND

By Elleene A. Kirkland
ELLEENE A. KIRKLAND

WHOA!

WILD HORSE ORGANIZED ASSISTANCE

INC.

A Foundation for the Welfare of
Wild Free-Roaming Horses and Burros

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January 4, 1977

Mr. E. I. Rowland, State Director
Bureau of Land Management
300 Booth Street, Room 3008
Reno, Nevada 89509

Dear Mr. Rowland:

Due to previous commitments Mrs. Johnston was unable to attend the review of the draft environmental statement for Tonopah. Instead she requested my attendance. Having prior knowledge, subsequent trips, and having reviewed the EIA along with Mrs. Johnston's advice, I believe I can adequately convey WHOA!'s position and provide comments thereof. We do appreciate the opportunity to participate.

There should certainly be no doubt in anyone's mind that the open range lands of our Western United States are in a serious state of depletion, with some areas almost at the point of no return. We do not take the word of land management agencies for this, but attend forums on land planning, spend incredible numbers of hours in study or at lectures by range management experts, and more importantly, tramp miles on field trips for on-the-site inspection. The years of drought we have had and are currently experiencing, are the cause for added concern for survival of wildlife, wild horses and wild burro habitats, and for continuation of modified (we hope) domestic livestock grazing.

With ever increasing demand for public land use, i.e., energy supplies, geothermal development, mining, recreation, and increasing human populations, etc., the responsibility for priorities lies at the Bureau of Land Management's front door. Its management practices instituted today will greatly affect the users of public land tomorrow.

It is our concern that major emphasis is still placed upon commercial interests. The public opinion mandate clearly emphasizes the BLM's role as trustee of the public land and we recognize the reluctance of the agencies in considering aesthetic values over those of commercial oriented industries.

The proposed draft indicates a desperate need to reduce the wild horses by two-thirds, yet states everal times in the ES that eventually this drastic cut at the present would in fact, benefit those commercial interests by generating more forage for use by the livestock industry. While WHOA! recognizes the necessity for wild horse population reductions, we question the determined number, and also question the complete removal of horses in several areas for the distinct purpose of easier management and to the advantage of the cattle and sheep industry. Psychological stress from thirst or frustration would be higher for wildlife and wild horses . . . cattle being a somewhat sedentary animals, usually not straying more than five miles from available water. The unavailability of water around Taylor Well and Highway Reservoir during certain rotation cycles, and a total lack of provision of water at Saulsbury, continues to convince us that this would not happen if the case were reversed on the cattle rotation cycle.

Fencing is not in the best interests of any wild creature. It is costly in terms of dollars and cents . . to the taxpayer who will foot the bill for 4.2 millions for materials to construct these fences over the next 15 years; to the managing agency's work load approximately 450 man-months to implement fence proposals; and to the livestock operators whose responsibility it is to maintain those fences. WHOA! offers and supports an alternative proposal, and many knowledgeabl individuals to whom we have spoken about it have agreed. This is it, and we feel it merits the support of every wildlife and conservation organization in our country, as well as the domestic livestock industry if they would open their minds. Cattle and sheepmen, for the most part, do not favor fences either, even though their purpose is to increase forage for their own personal profit-producing operations.

We urge that in lieu of fences, range riders should be hired by the land management agency to patrol the line a fence would take to keep domestic livestock within the "pasture" designated for use and not allow them to cross over to a resting pasture. There would be little if any pressure on the livestock, and a range rider would only have to ride the imaginary line twice a day, perhaps even once. No herding and no hard riding. Wildlife and wild horses and burros could cross freely back and forth without the hazard of being caught on fences, and their impact on the "resting pasture" would be minimal, compared to what pressures domestic livestock, in their far greater numbers, have put on the range in the past.

When one considers the millions of dollars required to fence the West which nobody wants to see happen, and the certain hazards to wildlife, we believe the cost to employ range riders would be infinitesimal . . to say nothing of the benefit to wildlife which cannot be measured in dollar and cents.

America is looking backward into its history more and more . . perhaps to capture some of the reassurance of an era before technology caught caught us all up in its ruthless and virtually incomprehensible rush towards an uncertain future. There would be no lack of qualified individuals who would be attracted to the adventure . . the return of the old spirit of the West, if you will . . if given the opportunity to participate in a program such as this. I believe it would gain nation-wide support.

As for the domestic livestock operators . . millions of dollars are lost annually by them through rustling, a crime that is on the increase. Carried out while the cattle are on the open range, few rustlers are ever caught in those remote and inhabited areas. What would discourage that kind of operation more than the pressence of a range rider? Possibly just knowing they are out there, on the job, would be a powerful deterrent. There need not be an army of them . . and their services would be required only during the seasons when livestock occupy the grazing allotments.

We are talking about public lands. Who, then should have the right to say what it wants and what it does not want on public land. The public, of course, and it does not want fences. I believe substituting a man and his horse, riding from here to there for an unyielding fence stretching from here to there would meet with such favor it would have overwhelming public support.

Agreements where privately owned water is involved should be made in cases where the owner is also a user of public lands. It is not right nor fair that a person can restrict the use of water and still maintain privileges on public land. Non-compliance or trespass should result in dismissed grazing privileges. There should be no question, once final reductions are made on all grazing uses.

Not once has it been admitted publicly by the Bureau that the wild free-roaming horse population is not due soley to proliferation, but because the horses could no longer be removed legally for commercial profit, nor has it been admitted that privately released animals were the basis for many of the large bands. If this type of attitude had prevailed with humans, it would have been correctly deemed bias. But someone or something has to be the scapegoat for previous abuses and mismanagement.

According to the Second Report to Congress on the Administration of the Wild free-roaming Horse and Burro Act an alleged population of 56,300 free-roaming animals exist today in the ten western states, with 22,258 of that number within the boundaries of the State of Nevada. Few of the claimed animals in trespass and their progeny have been removed to date, and if we use the popular, BLM 20% increase estimate, then the true number of horses in trespass are responsible for much of the pressures on grazing land attributed to wild horses. Wildlife and/or wild horse protectionists will never completely be convinced of BLM's sincerity in protecting the aesthetic values of the public land until BLM applies a positive rather than a negative attitude. Even considering population densities in some of those areas, the percentage of use still favors the livestock industry, so blaming wild horses for diminished wildlife forage is not justified. The wild horses have been the scapegoat for poor land planning policies, over-grazing, trespass, and indifference on the part of the federal agencies. I see opportunities for the land agencies to correct these injustices by an equitable correction of the abuses on public land, no matter what type of animals are involved.

Most sincerely,

Dawn Y. Lappin

Dawn Y. Lappin (Mrs.)
Adoption Director for WHOA!

SRM SOCIETY FOR RANGE MANAGEMENT

NEVADA SECTION

January 19, 1977

Mr. E. I. Rowland
State Director, Nevada
Bureau of Land Management
300 Booth Street
Reno, NV 89509

Dear Ed:

The Society sincerely appreciates the opportunity to review the Preliminary Draft of the Tonopah Study Area EIS. I and seven other Society members were able to look at it. Although most of us were unable to read the document in its entirety, the speciality interests of each reviewer resulted in what I believe to be a comprehensive review.

As we understand the EIS process, one of its intents is to show how the proposed action was determined though an analysis of impacts and alternatives, including a no-grazing alternative. First, the proposed action is hard to understand and is not clearly defined. Too much irrelevant information is presented, such as describing typical construction standards for improvement. But, more important, the descriptions of the grazing systems are difficult to follow. By removing the textbook information or putting it into the appendix, they can be written in a more concise form. It would be helpful to make more use of graphics to explain the where, when, and how of grazing.

The need to look at and evaluate alternatives is a very important part of the decision-making process. We are sure you appreciate its value. However, the development and analysis of alternatives was weakly presented in the EIS. The alternatives to the proposed action lacked sufficient detail (quantitative and qualitative information) for us to make a comparison and evaluate them. The quantitative inputs and outputs of each alternative could be presented as a table. This would allow one to see the differences between each alternative.

We question the need for intensive range management on each allotment to the extent that each allotment is to be managed under a rest-rotation grazing system or a modification of this system. It would have helped us to better understand the decision for doing so, if the analysis of the proposal included a review of alternative management systems for each allotment and the rationale for selection of one system over others.

We are concerned about the economics of the proposed action and ask, "Will it pay?" To answer the question it is important to know (1) the economic goals you desire to achieve, and (2) the relationship between the alternatives as to their cost (inputs) and the value of the products obtained (outputs). The total economic value of each alternative can be demonstrated by displaying its net present worth, benefit-cost ratio, and the interest rate of return. A discussion of the economic trade-off's would be useful. We could then see the economic impacts of the proposal, particularily the impacts upon the local livestock producers which make up the bulk of the agricultural industry in this area. We feel that the production of red meat on Federal lands in an important objective.

It is plain that you lacked data or the data on hand was inadequate. We question whether the forage inventories are valid for support of the proposed stocking rates. The descriptions of vegetative types are vague and lack information as to (1) their capability to produce forage for livestock and other grazing animals, (2) condition, (3) trend, and (4) the limitations or suitability for cultural treatment. These kinds of information are basic to range management and, if available, should be presented.

Considerable soil and climatic data for the Planning Area was presented; however, we observed little interpretation. In arid and semi-arid rangelands an understanding of the interaction between plants, soil, and climate is quite important. There exists much variability on these range sites and they react differently to grazing and cultural treatments. For example, some of the pastures will be heavily grazed in dry years, unduely stressing the plants. A more thorough discussion of these kinds of implications is needed. In the development of the grazing system, more consideration to the effects of seasonal weather patterns and plant growth cycles is needed.

Water quality is based on a single sample taken in a drought year. We would like to see a more representative sample made of water quality before making interpretations. The proposed action requires much development of water. Because the development of water is basic to the action it should be brought out how its use is to be assured for use by livestock.

We note little mention of monitoring of the proposed grazing systems. It is important to do continuing follow-up studies to determine whether the objectives of the management system are being met. Such studies should include condition and trend, actual use (time and numbers), utilization levels, and other information pertinent to management.

The discussion of range condition in Chapter II is quite confusing. A clearer presentation is needed of what is meant by range condition. Normally, range condition is based upon ecological factors and thought of in that light.

We wonder on what basis some of the specific objectives were developed (Chapter I) such as increasing vegetative density and litter. Many of the objectives appear totally unrealistic.

One of the goals presented (Chapter I-59) is the improvement of deteriorated aquatic, riparian, and meadow habitats. The grazing systems proposed do not show how this goal is to be met. Our experience indicates that these kinds of areas will be heavily grazed under any system and that protection from grazing one-in-three or one-in-four years may be insufficient to improve these sites. The nature of these kinds of sites in the Tonopay Area will require special management considerations beyond the allotment grazing system and mitigating measures now proposed.

One last comment is that we do not agree with your statement that the BLM cannot mitigate adverse economic impacts occurring to individual operators ... (Chapter IV-2). Perhaps we do not understand the statement and clarification is needed. We see many opportunities for mitigation through management systems and range improvements.

We discussed a number of other points but the above ones appeared to us to be the most significant. Again, we thank you for allowing us to review the draft and hope we have been of some help to you. If we can be of further assistance we would be glad to help you.

Sincerely yours,

Kenneth R. Genz

KENNETH R. GENZ
President, Nevada Section

NEVADA STATE HISTORICAL SOCIETY

Founded 1904

1650 North Virginia Street
Reno, Nevada 89503
Telephone 784-6397

December 28, 1976

Mr. E. I. Rowland, State Director
Bureau of Land Management
Room 3008, Federal Building
300 Booth Street
Reno, NV 89509

Dear Mr. Rowland:

I have just reviewed the proposed Tonopah Grazing Environmental Statement and have the following comments to make. First and foremost, the ES nowhere meets the BLM requirement for adequately inventorying its areas of administration. While I cannot accurately describe these omissions in areas other than historical interest, the amount of information gathered by the BLM staff in compiling this ES cannot meet my concept of an historic inventory as a professional historian. Therefore, since the inventory was fragmentary, I cannot support this ES as a comprehensive tool that accurately reflects the historic element of cultural values within the grazing district. Second, there are certain assumptions I must draw from a review of the ES. These are, that the emphasis within the cultural evaluation process within BLM is archeological, not historic. This axiomatic since the cultural resources staff of the BLM is drawn from anthropologists almost alone. Further, there is a prediliction among archeologists that they are equipped by training to do historical research. This assumption results in almost comic errors, such as occurred during the tour given the Tonopah grazing area this year, wherein Warm Springs was described as the first state capitol of Nevada (at least, if I read the summary of the trip commentary correctly). It appears that the cultural inventory of this ES was done by archeologists alone and resulted in an inventory, Section J, where the historic sites within the grazing area are almost completely unlisted.

Now, after crucifying your organization's hiring practices and work priorities, I would like to suggest means of mitigating my almost unilateral lack of respect for the activities of BLM within the cultural area. It seems to me that BLM exists within a vacumn. Speaking for myself and other historians with whom I have discussed the lack of historic interest within BLM, it might be advantageous for BLM to consider that they have an obligation in this area as well as resources management. Basically, you should open up to the areas of cultural interest and create some dialogue between individuals who have the knowledge and resources you lack. Personally, it appears to me that BLM is content to go its own way without attempting to receive comment prior to major policy decisions over where to place its studies or areas of investigation. BLM conducts many studies of cultural themes annually, yet the Nevada Historical Society has never been made privy to the planning for BLM cultural activities or knowledgeable over the funding that exists for this work. Until BLM begins to make its activities known to this organization, it will continue to respond negatively to any inquery regarding the job BLM is doing within the area of historic preservation and identification in Nevada.

Sincerely,

John M. Townley

John M. Townley
Director

December 26, 1976

Gene Nodine
District Manager
Bureau of Land Management
Battle Mountain, Nevada

I went to Reno on the fourteenth of December and spent two days reading the Enviornmental Impact Statement. While reading I wrote down a few notes and ideas of my own. There are a few things with which I disagree and feel most ranchers would share my views, and there are some ideas in the EIS which are very good. Also, there are a couple of problems I found which pertain to our ranch only.

First, I will discuss the over-all problems in the EIS as I see them. The BLM proposes to put barbless wire in the areas where horses are thickest and barriers which horses can cross but cattle cannot. It is my opinion that a cow will go through a barbless fence with no problem and that many cattle will be able to jump the barriers. I would suggest that the BLM use barbwire for all fences. As for a barrier for horses only, cattle will be able to cross anything a horse can cross and I feel this problem should be recognized. (See Sec.IV pg.7 #27) Also, I believe that all BLM fences should be 4 wire rather than 3 wire because 3 wire fences will not hold cattle.

A second problem in the EIS is the 6 month weaning age. At 6 months a calf's digestive system has not yet changed from milk to forage. The calf is still getting the majority of his nourishment from his mother. Furthermore, it is necessary on a desert operation, such as many ranchers in Nevada have, that heifer calves stay with their mothers longer in order to learn how to live off of the land. Weaning a calf at 6 months will contradict the Bureau's idea that the rest and rotation system will (a) cut down a rancher's death loss (b) create an increased weaning weight (c) improve the rancher's calf crop. I would suggest that the BLM have ranchers wean or tag the calves at 9 months. Any rancher will agree that 9 months is a good age for weaning calves because by this time the cow is starting to dry up and the calf is relying more on forage than milk. All in all it is just more natural to wean a calf at 9 months, whereas weaning a calf at 6 months is interfering with nature's own cycle.

A third problem is the time limit put on the ranchers when moving cattle from one pasture to another. It is very good that the Bureau has given each rancher a different time

limit depending on the traveling distance and size of the pastures. But there are three other things which need to be considered. They are the time of year when cattle are being moved, the over-all condition of the cattle (dry year cattle may be in poor condition as compared to a wet year), and the type of cattle being moved (dry cows drive much faster than cows with small calves). I think that the area manager should discuss this with each rancher individually and set a time limit together.

The fourth problem is that I don't believe that the cattle are in competition with deer and big horn sheep for forage. Deer and sheep are naturally higher grazers than are cattle, their cycles are different, and when the fences are put up the deer will be able to go over the fences, hence, they will get to the green grass first.

The final over-all problem with the EIS is the idea that all cattle should be removed from the range for two months (April and May). This proceedure will reduce weight gain for calves and cows, increase the death loss, reduce a rancher's calf crop, cause many ranchers financial disaster and create more useless expense. I know that all ranchers would like to see this idea removed all together from the EIS.

Now, Gene, I have two thoughts which pertain only to our ranch. One idea is that it would be senseless to plant fish in the Peavine creek where the creek is on BLM land. (See Sec.III Pg. 132) There is simply not enough water year round for fish to survive. Moreover, in a dry year there is no water at all in Peavine creek. The second thought deals with the wild horses. There are several places in the EIS which allow for horses in theIone Unit and no horses in the San Antone Unit. You can find these on the following pages.

1) San Antone-Smokey AMP No. 3 pg. 8
2) Section II pg. 150 & 151
3) Section II pg. 154

Then two other places of the EIS allow for 15 head or 90 AUM's in the Ione and San Antone Units combined. (Sec.II pg.149) This is inconsistent and should be cleared up. Actually, right now there are no horses at all in the San Antone Unit nor have there been any since we have been here. Also, the Bureau proposes to split the horses herd in Monte Cristo putting half on one side of the fence and half on the other side. This is not necessary because the horses naturally live in the higher country(Pilot Mountain) and only move down when snow fall is extremely heavy. All of the water is located in the high country so that horses put on the lower side of the fence would have no water.

Now that I've given you all my complaints I'll say that there are some very good ideas in the EIS. I feel that the rest and rotation system using fenced allotements is an excellent idea. I agree that the calf percentage could go up 12-15%, the death rate should decrease probably 1½%, and I feel that there will be an average weight increase even higher than the predicted 25% possibly as high as 40% in a good wet year. Also usage of the allotement plan should

eliminate the idea of having to remove all cattle from the range for two months because whole areas will get a years rest every so often.

Another good point in the EIS is that eventually ranchers will be able to increase their AUMs. According to the EIS all AUM increases will go to cattle which is highly justifiable as it is the rancher who will be doing much of the sacrificing and extra work to build up the forage.

Finally, probably one of the biggest pluses of the EIS is having the Area Manager in control. Every area on the BLM has different types of land and as a result different problems. This way individual problems can be ironed out between ranchers and the Bureau more effectively. The area manager has a much better understanding of the problems at hand than people who do not live in the area.

Gene, I think that over all the EIS looks pretty good. I do have one suggestion though. The BLM has brought in many people from many places to analyze the Tonopah Resource Area. I'm sure that these people are very well qualified to do this job. However, a big "natural resource" of information is being over looked and that is the rancher. Most ranchers in this area have lived on their ranches for years. They know the country better than anyone else because they have had years of experience in dealing with their BLM land. The BLM should send these specialists out to each rancher for a consultation in order to help these specialists understand the problems at hand. Another point that I would like to make is that last June the BLM conducted meetings with representatives of livestock, mining wildlife and recreation. At this meeting we reached some conclusions on things we felt should be deleted from the EIS. However, I notice they are still in the EIS. I know many ranchers and other interest groups in the Tonopah area feel that these meetinge are a farce and the Bureau really doesn't want input but must pretend to take it. I sincerely hope that this is not the case.

Thank-you for inviting me to read the EIS and for taking the time to read this response. I only hope that this will have some effect.

Sincerely,

T Zimmerman

Ted Zimmerman

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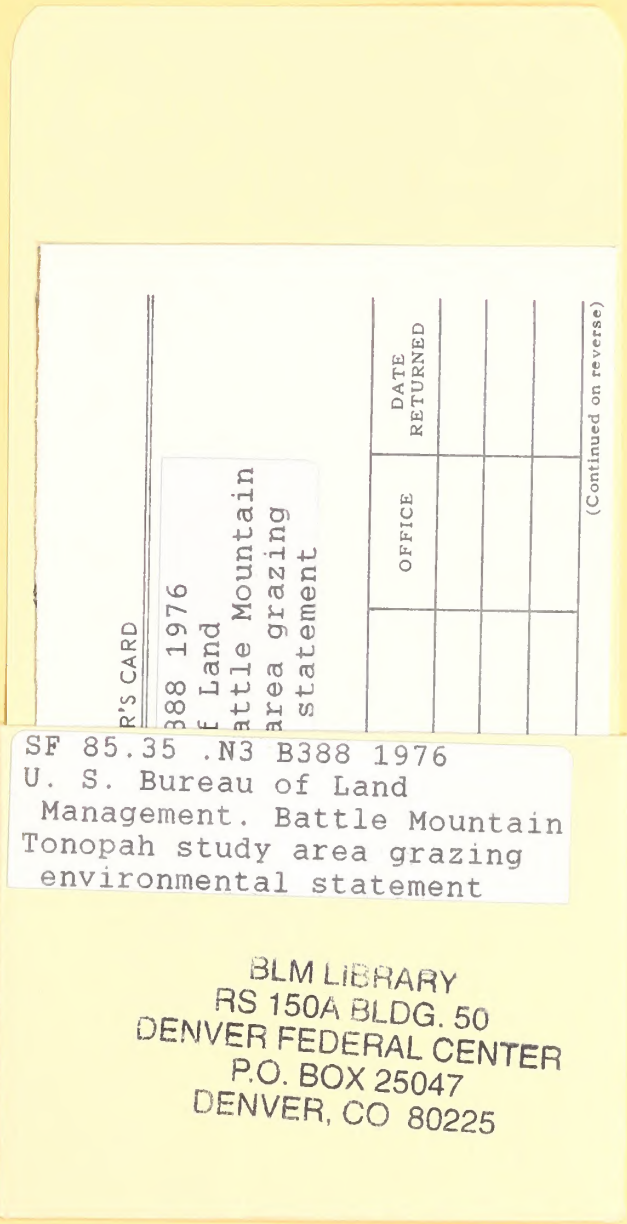

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